

# *Basin Environmental Service Technologies, LLC*

3100 Plains Highway  
P. O. Box 301  
Lovington, New Mexico 88260

**[jwlowry@basinenv.com](mailto:jwlowry@basinenv.com)**

Office: (575) 396-2378      Fax: (575) 396-1429



## **REMEDIATION SUMMARY & RISK-BASED SITE CLOSURE REQUEST**

**ENERGEN RESOURCES  
WEST LOVINGTON STRAWN UNIT #11  
Lea County, New Mexico  
Unit Letter "B" (NW/NE), Section 33, Township 15 South, Range 35 East  
Latitude 32° 58' 44.00" North, Longitude 103° 24' 50.00" West  
NMOCD Reference #: 1RP-10-4-2482**

Prepared For:

**ENERGEN RESOURCES CORPORATION  
3300 North "A" Street Building 4, Suite 100  
Midland, Texas 79705**

Prepared By:

**Basin Environmental Service Technologies, LLC  
3100 Plains Highway  
Lovington, New Mexico 88260**

**January 2015**

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Joel W. Lowry  
Project Manager

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## **1.0 INTRODUCTION & BACKGROUND INFORMATION**

Basin Environmental Service Technologies, LLC (Basin), on behalf of Energen Resources Corporation (Energen), has prepared this *Remediation Summary & Risk-Based Site Closure Request* for the release site known as West Lovington Strawn Unit #11 (WLSU #11). The legal description of the release site is Unit Letter "B" (NW/NE), Section 33, Township 15 South, Range 35 East, in Lea County, New Mexico. The geographic coordinates of the release site are 32° 58' 44.00' North latitude and 103° 24' 50.00" West longitude. The property affected by the release is owned by Mr. Dan Field. Please reference Figure 1 for a "Site Location Map".

On November 10, 2009, Energen discovered a release had occurred at the WLSU #11 Tank Battery. The release was attributed to the failure of a one-quarter inch (1/4") stainless steel plug on a salt water disposal pump. On discovery of the release, verbal notification was given to the New Mexico Oil Conservation Division (NMOCD) Hobbs District Office. A "Release Notification and Corrective Action" (Form C-141) was submitted to the NMOCD Hobbs District Office on December 4, 2009, and approved on April 19, 2010. The Form C-141 indicated approximately thirty barrels (30 bbls) of produced water were released. During initial response activities, a vacuum truck was utilized to recover approximately fifteen barrels (15 bbls) of free-standing fluids. A copy of the Form C-141 is provided as Appendix A.

On December 17, 2012, a *Remediation Summary & Risk-Based Soil Closure Strategy (Soil Closure Strategy)* was submitted to the NMOCD proposing a risk-based closure strategy on portions of the release site. The *Soil Closure Strategy* was subsequently approved.

## **2.0 NMOCD SITE CLASSIFICATION**

A search of the New Mexico Water Rights Reporting System (NMWRRS) database maintained by the New Mexico Office of the State Engineer (NMOSE) indicated the average depth to groundwater was fifty-nine feet (59') below ground surface (bgs) for Section 33, Township 15 South, Range 35 East. An NMOCD representative indicated the depth to groundwater was fifty-five feet (55') bgs on the initial C-141. Based on the NMOCD ranking system and the occurrence of impacted medium existing at greater than five feet (>5') bgs, twenty (20) points will be assigned to the site as a result of this criterion.

There is one (1) water well located approximately three hundred feet (300') south-southwest of the release site. Based on the NMOCD ranking system, ten (10) points will be assigned to the site as a result of this criterion.

There is one (1) livestock pond approximately three hundred feet (300') south-southwest of the release. Based on the NMOCD ranking system, ten (10) points will be assigned to the site as a result of this criterion.

NMOCD guidelines indicate the WLSU #11 release site has an initial ranking score of forty (40) points. The soil remediation levels for a site with a ranking score of greater than nineteen (>19) points are as follows:

- Benzene – 10 ppm (ppm)
- Benzene, Toluene, Ethylbenzene and Xylene (BTEX) – 50 ppm (ppm)
- Total Petroleum Hydrocarbons (TPH) – 100 ppm (ppm)

The New Mexico Administrative Code (NMAC) does not currently specify a remediation level for chloride concentrations in soil. Chloride remediation levels are set by the NMOCD on a site-specific basis.

### **3.0 SUMMARY OF SOIL REMEDIATION ACTIVITIES**

Beginning November 13, 2009, remediation activities were conducted at the release site by an environmental contractor that is no longer affiliated with the site. A photo-ionization detector (PID) and chloride field tests were used to field-screen soil samples and help guide the excavation. Heavily impacted soil south of the tank battery was excavated and hauled to an NMOCD-approved disposal facility. Further excavation to the north was limited due to the presence of active pipelines and the tank battery facility. The tank battery facility has since been removed. General site photographs are provided as Appendix B.

On July 18, 2012, Basin conducted an initial investigation at the release site. During the initial investigation, sixteen (16) soil samples (SW-1 through SW-16) were collected from the sidewalls of the original excavation. Soil samples were collected from each sidewall at approximate thirty-foot (30') increments and field-screened for concentrations of chloride using Hach Quantab® Chloride test strips. Field test results indicated chloride concentrations ranged from less than 160 ppm for soil sample SW-15 to greater than 26,000 ppm for soil samples SW-2, SW-3, SW-12 and SW-14. Table 1 summarizes "Initial Investigation Field Test Results". Field test sample locations are depicted in Figure 2, "Initial Investigation Map (Primary Excavation)".

Eight (8) soil samples (F-1 through F-8) were collected from the floor of the original excavation. Soil samples were collected at approximately thirty-foot (30') increments and field-screened for concentrations of chloride. Field test results indicated chloride concentrations were less than 112 ppm for each of the soil samples with the exception of soil sample F-2, which exhibited a chloride concentration of 188 ppm

A total of nine (9) soil samples (P-1 through P-9) were collected from the abandoned well pad area. Soil samples were collected at fifty-foot (50') increments and field-screened for concentrations of chloride. Field test results indicated chloride concentrations ranged from less than 112 ppm for soil sample P-7 to 1,800 ppm for soil sample P-9. Field test sample locations are depicted in Figure 3, "Initial Investigation Map (Well Pad)".

An additional five (5) soil samples (C-1 through C-5) were collected from within the earthen containment adjacent to the abandoned well pad. Soil samples were collected at approximate fifty-foot (50') increments and field-screened for concentrations of chloride. Field test results indicated chloride concentrations were less than 112 ppm for each of the soil samples with the exception of soil sample C-5, which exhibited a chloride concentration of 216 ppm.

On August 6, 2012, a series of delineation trenches were advanced at the release site in an effort to determine the horizontal extent of soil impact. During the advancement of the delineation

trenches, soil samples were collected from the bases of the trenches at ten-foot (10') increments and field-screened for concentrations of chloride. Delineation trenches were advanced laterally until field test results indicated chloride concentration were less than 250 ppm. Chloride field test results can be found in Table 1, "Initial Investigation Field Test Results".

Delineation Trench DT-1 was advanced to the north of the original excavation in the area represented by sidewall soil sample SW-1. The delineation trench was excavated to approximately ten feet (10') bgs and extended north approximately forty feet (40'). Field test results indicated chloride concentrations ranged from less than 112 ppm for the soil sample collected forty feet (40') north of the original excavation to 1,820 ppm for the soil sample collected thirty feet (30') north of the original excavation. Field test results indicated the horizontal extent of soil impact in the area defined by soil sample SW-1 extended forty feet (40') to the north of the original excavation.

Delineation Trench DT-2 was advanced to the north of the original excavation in the area represented by sidewall soil sample SW-2. The delineation trench was excavated to approximately ten feet (10') bgs and extended north approximately sixty feet (60'). Field test results indicated chloride concentrations ranged from less than 112 ppm for the soil sample collected sixty feet (60') north of the original excavation to 5,120 ppm for the soil samples collected thirty feet (30') and forty feet (40') north of the original excavation. Field test results indicated the horizontal extent of soil impact in the area defined by soil sample SW-2 extended sixty feet (60') north of the original excavation.

Delineation Trench DT-5 was advanced to the east of the original excavation in the area represented by sidewall soil sample SW-5. The delineation trench was excavated to approximately eight feet (8') bgs and extended east approximately five feet (5') toward the oilfield access road. One (1) soil sample was collected and field-screened for concentrations of chloride. Field test results indicated the chloride concentration was less than 112 ppm. Field test results indicate the horizontal extent of soil impact in the area defined by soil sample SW-5 extended five feet (5') to the east of the original excavation.

Delineation Trench DT-11 was advanced to the south of the original excavation in the area represented by sidewall soil sample SW-11. The delineation trench was excavated to approximately ten feet (10') bgs and extended south approximately five feet (5'). One (1) soil sample was collected and field-screened for concentrations of chloride. Field test results indicated the chloride concentration was less than 112 ppm. Field test results indicated the horizontal extent of soil impact in the area defined by soil sample SW-11 extends five feet (5') to the south of the original excavation.

Delineation Trench DT-12 was advanced to the west of the original excavation in the area represented by sidewall soil sample SW-12. The delineation trench was excavated to approximately ten feet (10') bgs and extended west approximately twenty feet (20'). Field test results indicated chloride concentrations ranged from less than 112 ppm for the soil sample collected twenty feet (20') west of the original excavation to 1,200 ppm for the soil sample collected ten feet (10') west of the original excavation. Field test results indicate the horizontal extent of soil impact in the area defined by soil sample SW-12 extended less than twenty feet (20') to the west of the original excavation.

Delineation Trench DT-13 was advanced to the west of the original excavation in the area represented by sidewall soil sample SW-13. The delineation trench was excavated to approximately ten feet (10') bgs and extended west approximately five feet (5'). One (1) soil sample was collected and field-screened for concentrations of chloride. Field test results indicated the chloride concentration was less than 112 ppm. Field test results indicate the horizontal extent of soil impact in the area defined by soil sample SW-13 extended five feet (5') to the west of the original excavation.

Delineation Trench DT-16 was advanced to the west of the original excavation in the area represented by sidewall soil sample SW-16. The delineation trench was excavated to approximately ten feet (10') bgs and extended west approximately twenty feet (20'). Field test results indicated chloride concentrations were less than 112 ppm for the soil samples collected ten feet (10') and twenty feet (20') west of the original excavation. Field test results indicated the horizontal extent of soil impact in the area defined by soil sample SW-16 extended less than ten feet (10') to the west of the original excavation.

On September 24, 2012, two (2) soil borings (SB-1 and SB-2) were advanced at the location in an effort to determine the vertical extent of soil impact. Soil boring SB-1 was advanced adjacent to the inferred release point, within the footprint of the former tank battery, in the area defined by the soil samples exhibiting the highest chloride concentrations from previous delineation activities. The soil boring was advanced to approximately twenty-eight feet (28') bgs. During the advancement of the soil boring, soil samples were collected at five-foot (5') drilling intervals and field-screened for concentrations of chloride. The soil boring was advanced until chloride field tests indicated concentrations of chloride were less than 250 ppm for two (2) consecutive samples. Confirmation soil samples (SB-1 @ 5', SB-1 @ 10', SB-1 @ 15', SB-1 @ 20', SB-1 @ 25' and SB-1 @ 28') were submitted to Cardinal Laboratories, of Hobbs, New Mexico, for analysis of chloride concentrations in accordance with EPA Method 4500 Cl-B. Laboratory analytical results indicated chloride concentrations ranged from 6,160 ppm for soil sample SB-1 @ 10' to 128 ppm for soil sample SB-1 @ 28'. Soil samples SB-1 @ 5', SB-1 @ 15' and SB-1 @ 28' were also analyzed for concentrations of TPH in accordance with EPA Method SW-846 8015M. Laboratory analytical results indicated TPH concentrations were less than the laboratory method detection limit (MDL) for each submitted soil samples. Soil samples SB-1 @ 15' and SB-1 @ 28' were also analyzed for BTEX constituent concentrations in accordance with EPA Method SW-846 8021b. Analytical results indicated BTEX constituent concentrations were less than the appropriate laboratory MDL. A summary of "Concentrations of Benzene, BTEX, TPH & Chloride in Soil" is provided in Table 2. Soil boring logs are provided as Appendix C. Laboratory analytical reports are provided as Appendix D.

Soil boring SB-2 was advanced approximately fifty feet (50') west of SB-1, within the footprint of the former tank battery. The soil boring was advanced to approximately thirty-eight feet (38') bgs. Confirmation soil samples (SB-2 @ 5', SB-2 @ 10', SB-2 @ 15', SB-2 @ 20', SB-2 @ 25', SB-2 @ 30', SB-2 @ 35' and SB-2 @ 38') were submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 2,560 ppm for soil sample SB-2 @ 10' to 160 ppm for soil sample SB-2 @ 38'. Soil samples SB-2 @ 5', SB-2 @ 15' and SB-2 @ 35' were also analyzed for concentrations of TPH. Laboratory analytical results indicated TPH concentrations were less than the laboratory MDL for each submitted soil samples. Soil samples SB-2 @ 15' and SB-2 @ 35' were analyzed for BTEX

constituent concentrations. Analytical results indicated BTEX constituent concentrations were less than the appropriate laboratory MDL.

On October 2, 2013, Hungry Horse, LLC, began excavation activities at the release site. As per the approved *Soil Closure Strategy*, the entire well pad was excavated to approximately eighteen inches (18") bgs or the caliche hardpan. The area south of the former tank battery, defined by the original open excavation was excavated to approximately ten feet (10') bgs. The area characterized by the former tank battery location and soil borings SB-1 and SB-2 was excavated to approximately five feet (5') bgs. The sidewalls of the respective excavations were advanced until field tests suggested concentrations of BTEX, TPH and chloride were less than NMOCD regulatory standards. Excavated material was stockpiled on-site, pending final disposition.

On October 4, 2013, four (4) confirmation soil samples (SSW #1, WSW #1, ESW #1 and ESW #2) were collected from the excavation sidewalls and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples. Chloride concentrations ranged from 16.0 ppm for soil sample SSW#1 to less than the laboratory MDL for soil samples WSW #1, ESW #1 and ESW #2. BTEX, TPH and chloride concentrations were below NMOCD Regulatory Standards in each of the submitted soil samples.

In addition, two (2) soil samples (East Stockpile and West Stockpile) were collected from the stockpiled material and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 1,660 ppm for soil sample East Stockpile to 768 ppm for soil sample West Stockpile. Soil represented by soil samples East Stockpile and West Stockpile was hauled to an NMOCD-approved disposal facility.

On October 8, 2013, two (2) confirmation soil samples (SSW #2 and WSW #2) were collected from the excavation sidewalls and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples. Chloride concentrations ranged from 112 ppm for soil sample WSW #2 to 64.0 ppm for soil sample SSW #2.

In addition, one (1) soil sample (10/8 Stockpile) was collected from the stockpiled material and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated soil sample 10/8 Stockpile exhibited a BTEX concentration of less than the laboratory MDL, a TPH concentration of 376 ppm and a chloride concentration of 224 ppm. Soil represented by soil sample 10/8 Stockpile was hauled to an NMOCD-approved disposal facility.

On October 11, 2013, four (4) confirmation soil samples (WSW #3, P-3, P-6 and P-9) were collected from the excavated area and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples. Chloride concentrations ranged from 224 ppm for soil sample WSW #3 to 64.0 ppm for soil sample P-6.

On October 18, 2013, seven (7) soil samples (North Floor #1 @ 5', North Floor #2 @ 5', North Floor #3 @ 5', NE Floor @ 10', NW Floor @ 10', SE Floor @ 10' and SW Floor @ 10')

representing contaminated left in-situ were collected from the floor of the primary excavation. Soil samples were submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX concentrations were less than the laboratory MDL for each of the submitted soil samples. TPH concentrations were less than the laboratory MDL in each of the submitted soil samples, with the exception of North Floor #2 @ 5' and North Floor #3 @ 5', which exhibited concentrations of 351 ppm and 115 ppm, respectively. Chloride concentrations ranged from 2,120 ppm for soil sample North Floor #1 @ 5' to 48.0 ppm for soil sample NE Floor @ 10'.

In addition, six (6) confirmation soil samples [NSW #1b, WSW #4d, WSW #4e, East Wall (Road)] were collected from the excavated area and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples. Chloride concentrations ranged from 4,720 ppm for soil sample East Wall (Road) to 96.0 ppm for soil sample WSW #4e. The excavation was advanced in the area represented by soil samples WSW #4d and East Wall (Road).

On October 23, 2013, six (6) confirmation soil samples (C-1, C-2, C-3, C-4, P-5 and P-7) were collected from the excavated well pad area and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples, with the exception of soil sample P-5, which exhibited a TPH concentration of 369 ppm. Chloride concentrations ranged from 288 ppm for soil sample P-5 to less than the laboratory MDL for soil samples C-3 and C-4. The excavation was advanced in the area represented by soil sample P-5.

On November 18, 2013, four (4) confirmation soil samples (Pad NE Floor @ 2.5', Pad SE Floor @ 2.5', Pad NW Floor @ 2.5' and Pad SW Floor @ 2.5') were collected from the floor of the excavated area around the plugged and abandoned well and submitted to the laboratory for analysis of BTEX, TPH and chloride concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate laboratory MDL in each of the submitted soil samples, with the exception of soil sample Pad SE Floor @ 2.5', which exhibited a TPH concentration of 28.3 ppm. Chloride concentrations ranged from 304 ppm for soil sample Pad NW Floor @ 2.5' to 80.0 ppm for soil sample Pad SE Floor @ 2.5'. The excavation was advanced in the areas represented by soil samples Pad NE Floor @ 2.5' and Pad NW Floor @ 2.5'.

On November 20, 2013, four (4) confirmation soil samples (Well Pad NSW, Well Pad ESW, Well Pad SSW and Well Pad WSW) were collected from the sidewalls of the excavated area around the plugged and abandoned well and submitted to the laboratory for analysis of TPH and chloride concentrations. Laboratory analytical results indicated TPH concentrations ranged from less than the appropriate laboratory MDL for soil samples Well Pad NSW and Well Pad ESW to 1,950 ppm for soil sample Well Pad WSW. Chloride concentrations ranged from 192 ppm for soil sample Well Pad NSW to 96.0 ppm for soil samples Well Pad ESW and Well Pad WSW. The excavation was advanced in the area represented by soil sample Well Pad WSW.

In addition, four (4) confirmation soil samples (Road NSW, Road ESW, F.P.a #2 @ 5' and F.P.b #1 @ 3') were collected from the sidewalls of the excavated road area and the floor of a narrow flowpath to the east of the primary excavation. Laboratory analytical results indicated chloride

concentrations ranged from 240 ppm for soil sample F.P.a #2 @ 5' to less than the laboratory MDL soil sample Road ESW. Soil samples F.P.a #2 @ 5' and F.P.b #1 @ 3' were also analyzed for BTEX and TPH concentrations, which were determined to be less than the appropriate laboratory MDL.

On November 22, 2013, nine (9) initial soil samples (Road ESW #2, Road SSW, F.P.a WSW #1, F.P.a WSW #2, F.P.a WSW #3, F.P.a ESW #1, F.P.a ESW #2, F.P.a, F.P.a ESW #3 and F.P.a NSW) were collected from the excavated area east of the primary excavation and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 3,840 ppm for soil sample F.P.a WSW #2 to 128 ppm for soil sample Road SSW. Chloride concentrations were above NMOCD regulatory standards in each of the submitted soil samples, with the exception of soil sample Road SSW. The excavation was advanced accordingly.

In addition, one (1) soil sample (11/21 Stockpile) was collected from the stockpiled material and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated soil sample 11/21 Stockpile exhibited a chloride concentration of 976 ppm. Soil represented by soil sample 11/21 Stockpile was hauled to an NMOCD-approved disposal facility.

On December 4, 2013, three (3) confirmation soil samples (Road ESW #2b, Pad NW Floor @ 3.5' and Pad NE Floor @ 3.5') were collected from the excavated areas and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated chloride concentrations ranged from 240 ppm for soil sample Road ESW #2b to 48.0 ppm for soil sample Pad NW Floor @ 3.5'.

On December 6, 2013, one (1) soil confirmation, soil sample (Well Pad WSWb) was collected from the excavated area on the caliche well pad and submitted to the laboratory for analysis of BTEX and TPH concentrations. Laboratory analytical results indicated BTEX and TPH concentrations were less than the appropriate MDL.

Upon receiving laboratory analytical results from confirmation soil samples, the excavated area around the plugged and abandoned well was brought up to grade using locally purchased, non-impacted material.

On December 9, 2013, upon receiving NMOCD approval, the open excavation characterized by the former tank battery location was backfilled to approximately five feet (5') bgs. A one foot (1') layer of clay was installed on the floor of the excavation and compacted using a sheep's foot roller. This engineering control was designed to mitigate the vertical migration of any contaminants left in-situ. Following liner installation, the remaining portion of the excavation was backfilled with locally purchased, non-impacted material. Approximately eighteen inches (18") of locally purchased, non-impacted top soil was installed over the backfilled excavation as per the NMOCD-approved *Soil Closure Strategy*. Top soil was contoured to match the natural landscape and seeded as per the landowner.

On December 16, 2013, ten (10) soil samples (NSWc @ 3', NSWd @ 3', NSWd @ 5', ESW #3c @ 3', ESW #3c @ 5', ESW #2d @ 3', WSW #3c @ 3', WSW #2c @ 3', WSW #2d @ 3' and WSW #1b @ 3') were collected from the sidewalls of the excavated flow path area and submitted to the laboratory for analysis of chloride concentrations. Laboratory analytical results indicated

chloride concentrations ranged from 672 ppm for soil sample NSWc @ 3' to 112 ppm for soil sample NSWd @ 5'. Soil samples NSWc @ 3', ESW #3c @ 3', ESW #2d @ 3', WSW #2c @ 3' and WSW #1b @ 3' were also analyzed for concentrations of TPH, which were determined to be less than the laboratory MDL in each of the submitted soil samples.

As per the NMOCD, the excavation sidewalls were advanced an additional one (1) to two feet (2') in the areas represented by soil samples NSWc @ 3', ESW #2d, WSW #3c @ 3', WSW #2c @ 3' and WWS #1b @ 3'. Upon advancing the excavation sidewalls, the excavation was backfilled with locally purchased, non-impacted top soil, contoured to match the natural landscape, and seeded as per the landowner.

Approximately five thousand, nine hundred and twenty cubic yards (5,920 yd<sup>3</sup>) of impacted material was transported to Sundance Services, Inc (NMOCD Permit # 01-003) for disposal. An additional one thousand, six hundred and sixty cubic yards (1,660 yd<sup>3</sup>) of impacted material was transported to Jay Dan Landfarm (NMOCD Permit # NM-1-045).

The final dimensions of the primary excavation characterized by the original release and former tank battery location were approximately one hundred thirty feet (130') in length, forty-five (45) to one hundred fifteen feet (115') in width and five (5) to ten feet (10') in depth. The final dimensions of the excavated area around the plugged and abandoned well were approximately sixty-five feet (65') in length, forty-five feet (45') in width and two and one-half (2.5) to three and one-half feet (3.5') in depth. The excavation within the affected pasture area measured approximately one hundred thirty feet (130') in length, fifteen (15) to forty-five feet (45') in width and five feet (5') in depth. In addition, a caliche well pad measuring approximately two hundred feet (200') in length and one hundred fifty feet (150') in width was also reclaimed.

#### **4.0 GROUNDWATER INVESTIGATION SUMMARY**

On October 27, 2014, as per the NMOCD-approved *Soil Closure Strategy*, Basin installed a monitoring well (MW-1) approximately one hundred feet (100') down-gradient from the release site to investigate the status of the groundwater. The groundwater monitoring well was installed to a total depth of sixty-five feet (65') bgs. On November 20, 2014, the monitoring well was gauged and sampled using EPA standard methods. One (1) groundwater sample (MW-1) was submitted to the laboratory for analysis of BTEX and chloride concentrations. Laboratory analytical results indicated BTEX concentrations were less than the appropriate laboratory MDL and the concentration of chloride was 56.0 mg/L. A summary of "Concentrations of Benzene, BTEX, & Chloride in Groundwater" is provided in Table 3. Additional laboratory analytical results from groundwater sample MW-1 are provided in Appendix E. The location of the monitor well is depicted on Figure 5 "Monitor Well Location Map".

## **5.0 QA/QC PROCEDURES**

### **5.1 Soil Sampling**

Soil samples were delivered to Cardinal Laboratories, Inc., of Hobbs, New Mexico, for BTEX, TPH, and/or chloride analyses using the methods described below:

- BTEX concentrations in accordance with EPA Method SW-846 8021b
- TPH concentrations in accordance with modified EPA Method SW-846 8015M
- Chloride concentrations in accordance with EPA Method SM 4500 Cl-B

### **5.2 Groundwater Sampling**

Groundwater samples were delivered to Cardinal Laboratories, Inc., of Hobbs, New Mexico, for analyses using the methods described below:

- BTEX concentrations in accordance with EPA Method SW-846 8021b
- Chloride concentrations in accordance with EPA Method SM 4500 Cl-B
- Metal concentrations in accordance with EPA 200.7
- Mercury concentrations in accordance with EPA 245.1
- Volatile Organic Compounds in accordance with SW-846 8260B
- Semi-Volatile Organic Compounds in accordance with SW-846 8270C
- Cations in accordance with EPA 200.7
- Alkalinity in accordance with EPA 310.1
- Conductivity in accordance with EPA 320.1
- Nitrate in accordance with EPA 353.3
- pH in accordance with EPA 150.1
- Sulfate in accordance with 375.4
- Total Dissolved Solids in accordance with EPA 160.1

### **5.3 Decontamination of Equipment**

Cleaning of the sampling equipment was the responsibility of the environmental technician. Prior to use, and between each sample, the sampling equipment was cleaned with Liqui-Nox® detergent and rinsed with distilled water.

### **5.4 Laboratory Protocol**

The laboratory was responsible for proper QA/QC procedures after signing the chain-of-custody form(s). These procedures were either transmitted with the laboratory reports or are on file at the laboratory.

## **6.0 SITE CLOSURE REQUEST**

Remediation activities at the West Lovington Strawn Unit #11 environmental remediation site were conducted in accordance with the NMOCD and the approved *Remediation Summary & Risk-Based Soil Closure Strategy*. Confirmation soil and groundwater samples were submitted to an NMOCD-approved laboratory. An approved clay liner was installed in the floor of the primary excavation in an effort to inhibit the vertical migration of contaminants left in-situ. A down-gradient monitor well installed at the release site indicated groundwater had not been impacted. Based on these laboratory analytical results and the installation of an approved engineering control, Basin recommends Energen provide the NMOCD Hobbs District Office a copy of this *Remediation Summary and Risk-Based Site Closure Request* and request the NMOCD grant closure to the WLSU #11 release site.

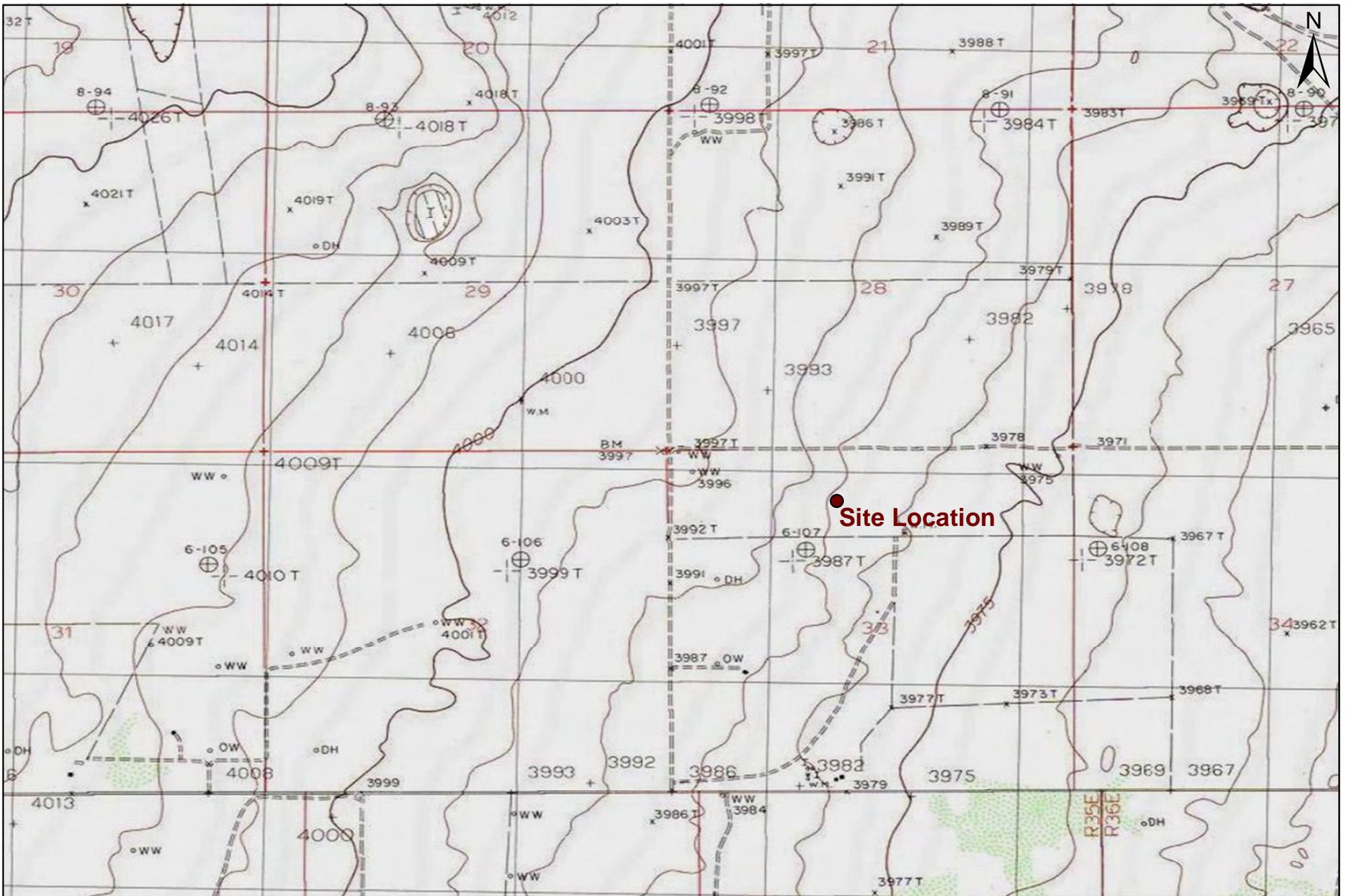
## **7.0 LIMITATIONS**

Basin Environmental Service Technologies, LLC, has prepared this *Remediation Summary & Risk-Based Site Closure Request* to the best of its ability. No other warranty, expressed or implied, is made or intended. Basin Environmental has examined and relied upon documents referenced in the report and on oral statements made by certain individuals. Basin Environmental has not conducted an independent examination of the facts contained in referenced materials and statements. Basin Environmental has presumed the genuineness of these documents and statements and that the information provided therein is true and accurate. Basin Environmental has prepared this report in a professional manner, using the degree of skill and care exercised by similar environmental consultants. Basin Environmental notes that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth herein are applicable only to the facts and conditions as described at the time of this report.

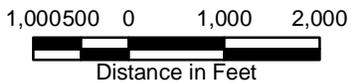
This report has been prepared for the benefit of BOPCO, LP. The information contained in this report, including all exhibits and attachments, may not be used by any other party without the express consent of Basin Environmental Service Technologies, LLC, and/or BOPCO, LP.

## **8.0 DISTRIBUTION:**

- Copy 1:       Tomas Oberding  
              New Mexico Energy, Minerals and Natural Resources Department  
              Oil Conservation Division (District 1)  
              1625 French Drive  
              Hobbs, NM 88240
- Copy 2:       Dan Field  
              3522 West Gum Street  
              Lovington, NM 88260
- Copy 3:       Andy Cobb  
              Energen Resource Corporation  
              3300 North "A" Street Building 4, Suite 100  
              Midland, TX 79705
- Copy 4:       Basin Environmental Service Technologies, LLC  
              P.O. Box 301  
              Lovington, NM 88260

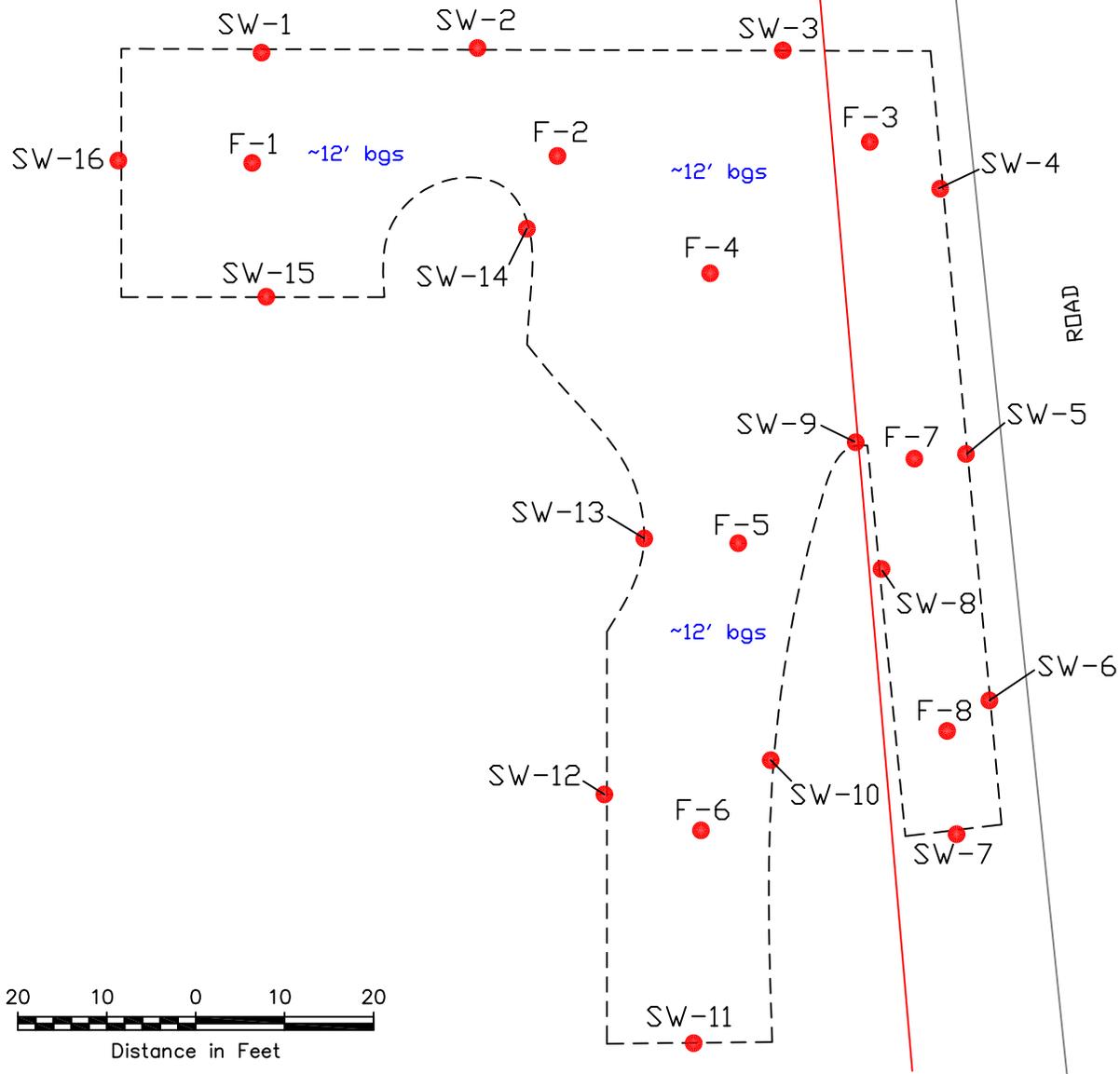


**Figure 1**  
**Site Location Map**  
**Energen Resources**  
**West Lovington Strawn Unit #11**  
**Lea County, New Mexico**  
**NMOCD Reference #: 1RP-10-4-2482**



Basin Environmental Service Technologies, LLC  
 3100 Plains Hwy.  
 Lovington, NM 88260

Drawn By: BJA	Checked By: JWL
October 1, 2012	Scale: 1" = 2000'

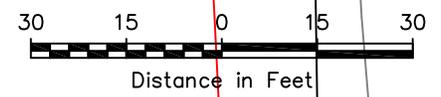
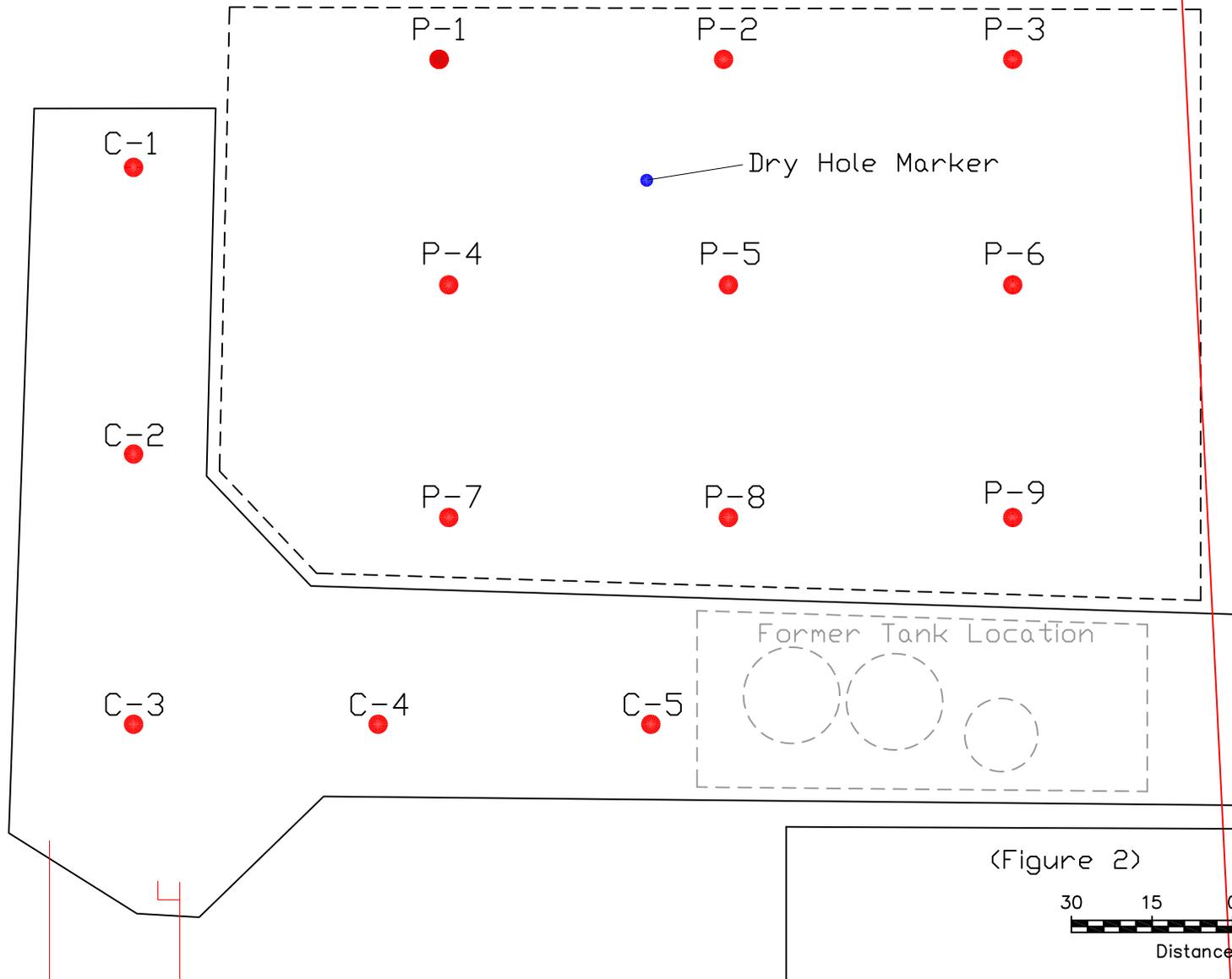


Legend	
●	Sample Location
—	Road
—	Pipeline
- - -	Excavation Extent

Figure 2  
 Initial Investigation Map (Primary Excavation)  
 Energen Resources  
 West Lovington Strawn Unit #11  
 NMOCD Ref #1RP 10-4-2482  
 Lea County, New Mexico

**Basin Environmental Service Technologies**

Prep By: JWL	Checked By: BJA
January 16, 2015	Scale 1" = 20'



**Legend**

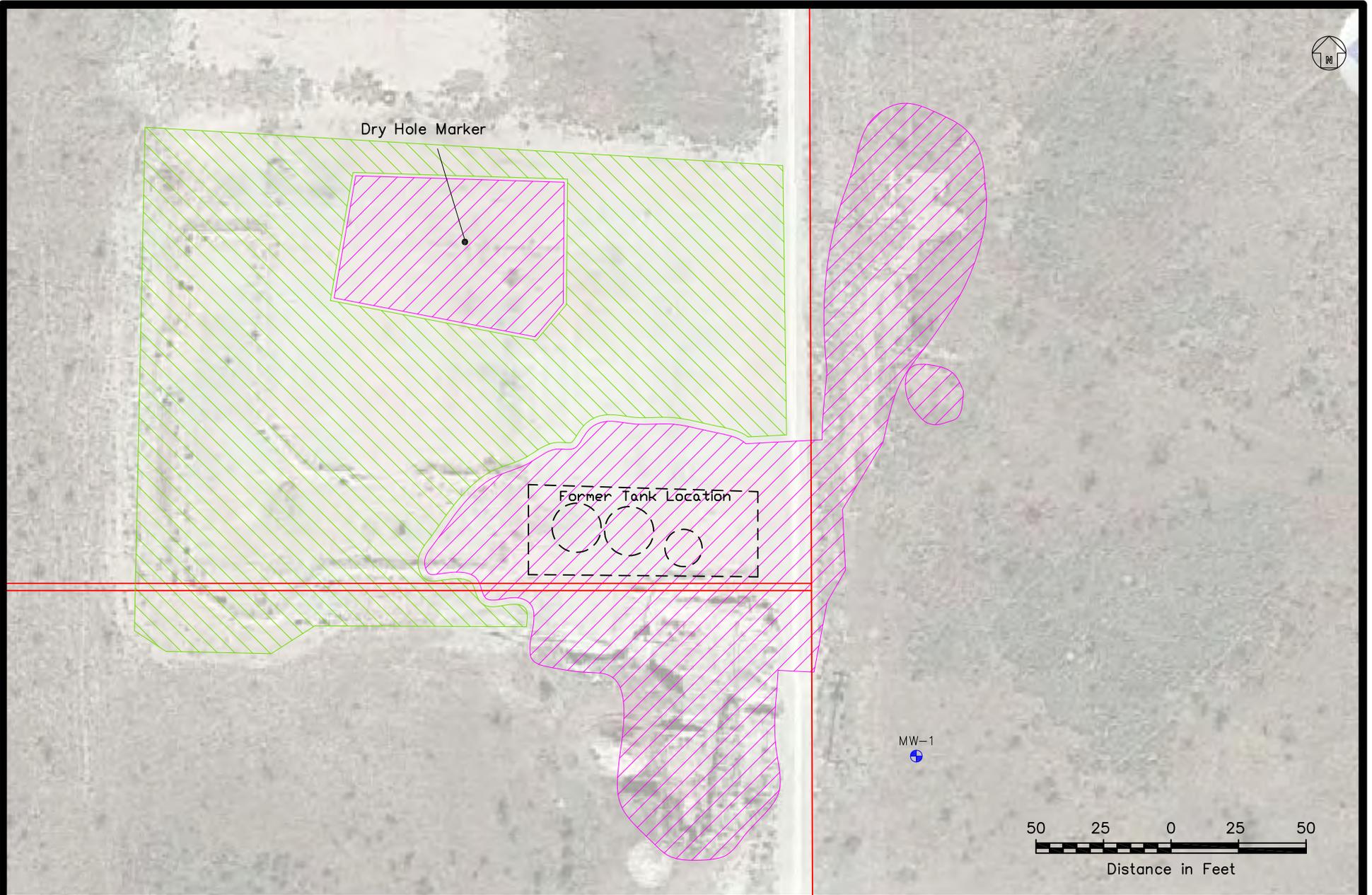
- Sample Location
- P/A Well
- Firewall
- Road
- Pipeline

**Figure 3**  
 Initial Investigation Map (Well Pad)  
 Energen Resources  
 West Lovington Strawn Unit #11  
 NMOCD Ref #1RP 10-4-2482  
 Lea County, New Mexico

**Basin Environmental Service Technologies**

Prep By: JWL	Checked By: BJA
January 16, 2015	Scale 1" = 30'





Legend

- Excavated Area
- Reclaimed Area
- Pipeline
- Monitor Well

Figure 5  
Monitor Well Location Map  
Energen Resources  
West Lovington Strawn Unit #11  
NMOCD Ref #1RP 10-4-2482  
Lea County, New Mexico

Basin Environmental Service Technologies

Prep By: JWL	Checked By: BJA
December 23, 2014	Scale 1"=50'

TABLE 1

## INITIAL INVESTIGATION FIELD TEST RESULTS

ENERGEN RESOURCES CORP.  
WEST LOVINGTON STRAWN UNIT #11  
NMOC D REFERENCE #: 1RP-10-4-2482  
LEA COUNTY, NEW MEXICO

	SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	CL- (ppm)
Excavation Sidewalls	SW-1	8'	7/18/2012	7,740
	SW-2	8'	7/18/2012	>26,000
	SW-3	8'	7/18/2012	>26,000
	SW-4	8'	7/18/2012	188
	SW-5	8'	7/18/2012	2,460
	SW-6	8'	7/18/2012	428
	SW-7	8'	7/18/2012	188
	SW-8	8'	7/18/2012	18,048
	SW-9	8'	7/18/2012	20,216
	SW-10	8'	7/18/2012	4,744
	SW-11	8'	7/18/2012	612
	SW-12	8'	7/18/2012	>26,000
	SW-13	8'	7/18/2012	720
	SW-14	8'	7/18/2012	>26,000
	SW-15	8'	7/18/2012	160
	SW-16	8'	7/18/2012	352
Excavation Floor	F-1	10'	7/18/2012	<112
	F-2	10'	7/18/2012	188
	F-3	10'	7/18/2012	<112
	F-4	10'	7/18/2012	<112
	F-5	10'	7/18/2012	<112
	F-6	10'	7/18/2012	<112
	F-7	10'	7/18/2012	<112
	F-8	10'	7/18/2012	<112
Well Pad	P-1	Surface	7/18/2012	316
	P-2	Surface	7/18/2012	352
	P-3	Surface	7/18/2012	516
	P-4	Surface	7/18/2012	280
	P-5	Surface	7/18/2012	472
	P-6	Surface	7/18/2012	352
	P-7	Surface	7/18/2012	<112
	P-8	Surface	7/18/2012	136
	P-9	Surface	7/18/2012	1,800
Containment	C-1	Surface	7/18/2012	<112
	C-2	Surface	7/18/2012	<112
	C-3	Surface	7/18/2012	<112
	C-4	Surface	7/18/2012	<112
	C-5	Surface	7/18/2012	216
DT-1	20' North of SW-1	8'	8/6/2012	836
DT-1	30' North of SW-1	8'	8/6/2012	1,820
DT-1	35' North of SW-1	8'	8/6/2012	252
DT-1	40' North of SW-1	8'	8/6/2012	<112
DT-2	20' North of SW-2	8'	8/6/2012	2,100
DT-2	30' North of SW-2	8'	8/6/2012	5,120
DT-2	40' North of SW-2	8'	8/6/2012	5,120
DT-2	50' North of SW-2	8'	8/6/2012	2,250
DT-2	55' North of SW-2	8'	8/6/2012	352
DT-2	60' North of SW-2	8'	8/6/2012	<112
DT-5	5' East of SW-5	8'	8/6/2012	<112
DT-11	5' South of SW-11	8'	8/6/2012	<112
DT-12	10' West of SW-12	8'	8/6/2012	1,200
DT-12	15' West of SW-12	8'	8/6/2012	188
DT-12	20' West of SW-12	8'	8/6/2012	<112
DT-13	5' West of SW-13	8'	8/6/2012	<112
DT-16	10' West of SW-16	8'	8/6/2012	<112
DT-16	20' West of SW-16	8'	8/6/2012	<112

TABLE 2

## CONCENTRATIONS OF BENZENE, BTEX, TPH &amp; CHLORIDE IN SOIL

ENERGEN RESOURCES CORP.  
WEST LOVINGTON STRAWN UNIT #11  
NMOCD REFERENCE #: 1RP-10-4-2482  
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M			TOTAL TPH C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	4500 CL-B CHLORIDE (mg/Kg)
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C <sub>6</sub> -C <sub>12</sub> (mg/Kg)	DRO C <sub>12</sub> -C <sub>28</sub> (mg/Kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/Kg)		
SB-1 @ 5'	5'	9/24/2012	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	2,000
SB-1 @ 10'	10'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	6,160
SB-1 @ 15'	15'	9/24/2012	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	3,760
SB-1 @ 20'	20'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	1,090
SB-1 @ 25'	25'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	192
SB-1 @ 28'	28'	9/24/2012	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	128
SB-2 @ 5'	5'	9/24/2012	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	2,160
SB-2 @ 10'	10'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	2,560
SB-2 @ 15'	15'	9/24/2012	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	992
SB-2 @ 20'	20'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	512
SB-2 @ 25'	25'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	864
SB-2 @ 30'	30'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	704
SB-2 @ 35'	35'	9/24/2012	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	272
SB-2 @ 38'	38'	9/24/2012	In-Situ	-	-	-	-	-	-	-	-	-	160
SSW #1	8'	10/4/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	16.0
WSW #1	8'	10/4/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<16.0
ESW #1	8'	10/4/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<16.0
ESW #2	8'	10/4/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<16.0
East Stockpile	N/A	10/4/2013	Disposed	-	-	-	-	-	-	-	-	-	1,660
West Stockpile	N/A	10/4/2013	Disposed	-	-	-	-	-	-	-	-	-	768
SSW #2	8'	10/8/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	64.0
WSW #2	8'	10/8/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	112
10/8 Stockpile	N/A	10/8/2013	Disposed	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	257	119	376	224
WSW #3	8'	10/11/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	224
P-3	1.5'	10/11/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	96.0
P-6	1.5'	10/11/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	64.0
P-9	1.5'	10/11/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	144
North Floor #1 @ 5'	5'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	2,120
North Floor #2 @ 5'	5'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	99.5	71.5	351	2,000
North Floor #3 @ 5'	5'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	66.6	48.2	115	2,040
NE Floor @ 10'	10'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	48.0
NW Floor @ 10'	10'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	80.0
SE Floor @ 10'	10'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	880
SW Floor @ 10'	10'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	320
NSW #1b	4'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	288
WSW #4d	4'	10/18/2013	Excavated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	304
WSW #4e	4'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	96.0
East Wall (Road)	4'	10/18/2013	Excavated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	4,720
NSW #2	4'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	176
NSW #3	4'	10/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	144

TABLE 2

## CONCENTRATIONS OF BENZENE, BTEX, TPH &amp; CHLORIDE IN SOIL

ENERGEN RESOURCES CORP.  
WEST LOVINGTON STRAWN UNIT #11  
NMOCD REFERENCE #: 1RP-10-4-2482  
LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	METHOD: EPA SW 846-8021B, 5030					METHOD: 8015M			TOTAL TPH	4500 CL-B	
				BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL-BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)	TOTAL BTEX (mg/Kg)	GRO C <sub>6</sub> -C <sub>12</sub> (mg/Kg)	DRO C <sub>12</sub> -C <sub>28</sub> (mg/Kg)	ORO C <sub>28</sub> -C <sub>35</sub> (mg/Kg)	C <sub>6</sub> -C <sub>35</sub> (mg/Kg)	CHLORIDE (mg/Kg)	
C-1	18"	10/23/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	96.0	
C-2	18"	10/23/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	32.0	
C-3	18"	10/23/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<16.0	
C-4	18"	10/23/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<16.0	
P-5	18"	10/23/2013	Excavated	<0.050	<0.050	<0.050	<0.150	<0.300	26.9	342	<10.0	<10.0	369	288
P-7	18"	10/23/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	224	
Pad NE Floor @ 2.5'	2.5'	11/18/2013	Excavated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	288	
Pad SE Floor @ 2.5'	2.5'	11/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	28.3	<10.0	<10.0	80.0	
Pad NW Floor @ 2.5'	2.5'	11/18/2013	Excavated	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	304	
Pad SW Floor @ 2.5'	2.5'	11/18/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	240	
Well Pad NSW	1'	11/20/2013	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	192	
Well Pad ESW	1'	11/20/2013	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	96.0	
Well Pad SSW	1'	11/20/2013	In-Situ	-	-	-	-	-	<10.0	12.7	<10.0	<10.0	144	
Well Pad WSW	1'	11/20/2013	Excavated	-	-	-	-	-	<10.0	1,690	260	1,950	96.0	
Road NSW	4'	11/20/2013	In-Situ	-	-	-	-	-	-	-	-	-	208	
Road ESW	4'	11/20/2013	In-Situ	-	-	-	-	-	-	-	-	-	<16.0	
F.P.a #2 @ 5'	5'	11/20/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	240	
F.P.b #1 @ 3'	3'	11/20/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	192	
11/21 Stockpile	N/A	11/22/2013	Disposed	-	-	-	-	-	-	-	-	-	976	
Road ESW #2	4'	11/22/2013	Excavated	-	-	-	-	-	-	-	-	-	2,080	
Road SSW	4'	11/22/2013	In-Situ	-	-	-	-	-	-	-	-	-	128	
F.P.a WSW #1	4'	11/22/2013	Excavated	-	-	-	-	-	-	-	-	-	1,360	
F.P.a ESW #1	4'	11/22/2013	In-Situ	-	-	-	-	-	-	-	-	-	304	
F.P.a WSW #2	4'	11/22/2013	Excavated	-	-	-	-	-	-	-	-	-	3,840	
F.P.a ESW #2	4'	11/22/2013	Excavated	-	-	-	-	-	-	-	-	-	1,780	
F.P.a WSW #3	4'	11/22/2013	Excavated	-	-	-	-	-	-	-	-	-	1,230	
F.P.a ESW #3	4'	11/22/2013	Excavated	-	-	-	-	-	-	-	-	-	2,560	
F.P.a NSW	4'	11/22/2013	Excavated	-	-	-	-	-	-	-	-	-	784	
Road ESW #2b	4'	12/4/2013	In-Situ	-	-	-	-	-	-	-	-	-	240	
Pad NW Floor # 3.5'	3.5'	12/4/2013	In-Situ	-	-	-	-	-	-	-	-	-	48.0	
Pad NE Floor @ 3.5'	3.5'	12/4/2013	In-Situ	-	-	-	-	-	-	-	-	-	176	
Well Pad WSWb	1'	12/6/2013	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	-	
NSWc @ 3'	3'	12/16/2013	Excavated	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	672	
NSWd @ 3'	3'	12/16/2013	In-Situ	-	-	-	-	-	-	-	-	-	224	
NSWd @ 5'	5'	12/16/2013	In-Situ	-	-	-	-	-	-	-	-	-	112	
ESW #3c @ 3'	3'	12/16/2013	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	128	
ESW #3c @ 5'	5'	12/16/2013	In-Situ	-	-	-	-	-	-	-	-	-	160	
ESW #2d @ 3'	3'	12/16/2013	Excavated	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	640	
WSW #3c @ 3'	3'	12/16/2013	Excavated	-	-	-	-	-	-	-	-	-	640	
WSW #2c @ 3'	3'	12/16/2013	Excavated	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	480	
WSW #2d @ 3'	3'	12/16/2013	In-Situ	-	-	-	-	-	-	-	-	-	144	
WSW #1b @ 3'	3'	12/16/2013	In-Situ	-	-	-	-	-	<10.0	<10.0	<10.0	<10.0	416	
NMOCD Criteria				10				50				100	250	

- = Not analyzed.

TABLE 3

CONCENTRATIONS OF BENZENE, BTEX & CHLORIDE IN GROUNDWATER

ENERGEN RESOURCES CORP.  
 WEST LOVINGTON STRAWN UNIT #11  
 LEA COUNTY, NEW MEXICO

SAMPLE LOCATION	SAMPLE DATE	METHODS: EPA SW 846-8021B							EPA 160.1	4500 Cl B
		BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL-BENZENE (mg/L)	M,P-XYLENES (mg/L)	O-XYLENES (mg/L)	TOTAL XYLENE (mg/L)	TOTAL BTEX (mg/L)	TDS (mg/L)	CHLORIDE (mg/L)
MW-1	11/20/2014	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.002	<0.002	384	56.0
<b>NMOCD STANDARD</b>		<b>0.01</b>	<b>0.75</b>	<b>0.75</b>	<b>TOTAL XYLENES 0.62</b>					<b>250</b>

RECEIVED

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

APR 19 2010

Form C-141  
Revised October 10, 2003

HOBBSSOCD  
Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

Release Notification and Corrective Action

OPERATOR

Initial Report  Final Report

Name of Company: Energen Resources Corp.	Contact: Andrew Cobb
Address: 3300 North A St. Bldg. 4, Ste. 100, Midland 79705	Telephone No.: 432-687-1155
Facility Name: West Lovington Strawn Unit #11	Facility Type: Oil and Gas Production Facility

Surface Owner: Dan Field	Mineral Owner: Energen Resources	Lease No.: 277820
--------------------------	----------------------------------	-------------------

LOCATION OF RELEASE

API 30.025.32852

Unit Letter	Section:	Township:	Range	Feet from the	North/South Line	Feet from the	East/West Line	County: Lea
B	33	15S	35E	760	N	2090	E	

Latitude 32-58-44.00 Longitude 103-24-50.00

WTR SS

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release: 30 barrels	Volume Recovered: 15 barrels
Source of Release: SWD Transfer Pump	Date and Hour of Occurrence: 11-10-09 @ unknown	Date and Hour of Discovery: 11-10-09 @ 10:30 am
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*  
A 1/2" stainless steel plug failed on a salt water disposal pump this facility. The pump was located within the spill containment walls of the battery but a volume of approximately 30 barrels was spilled outside the containment.

Describe Area Affected and Cleanup Action Taken.\*  
The chloride area outside the battery containment was dug out and will be replaced with soil purchased from the surface owner.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: <i>Andrew Cobb</i>	<u>OIL CONSERVATION DIVISION</u> <i>[Signature]</i>	
Printed Name: Andrew Cobb	Approved by District Supervisor <b>ENVIRONMENTAL ENGINEER</b>	
Title: Sr. Safety & Environmental Specialist	Approval Date: 4.19.10	Expiration Date: 6.18.10
E-mail Address: andy.cobb@energen.com	Conditions of Approval: <input checked="" type="checkbox"/> Attached <input type="checkbox"/>	
Date: 12-4-09 Phone: 432-686-3599	SUBMIT FINAL C.A.I w/DOCS BY IRP # 10.4.2482	

\* Attach Additional Sheets If Necessary



Photograph of the original excavation at the WLSU #11 remediation site.



Photograph of the original excavation at the WLSU #11 remediation site.



Photograph of delineation activities conducted during the initial investigation at the WLSU #11 remediation site.



Photograph of the advancement of soil bores at the WLSU #11 remediation site.



Photograph of the advancement of soil bores at the WLSU #11 remediation site.



Photograph of excavation activities at the WLSU #11 remediation site.



Photograph of the excavated area characterized by the initial release and former tank battery location at the WLSU #11 remediation site.



Photograph of the excavated area beneath the former tank battery location at the WLSU #11 remediation site.



Photograph of the scraped well pad area at the WLSU #11 remediation site.



Photograph of the excavated area around the plugged and abandoned well at the WLSU #11 remediation site.



Photograph of backfilling activities at the WLSU #11 remediation site.



Photograph of the installation of the clay liner at the WLSU #11 remediation site.



Photograph of the affected pasture area on the east side of the caliche road at the WLSU #11 remediation site.



Photograph of the excavated pasture area at the WLSU #11 remediation site.



Photograph of the excavated pasture area at the WLSU #11 remediation site.



Photograph of the excavated pasture area at the WLSU #11 remediation site.



Photograph of the well pad area after remediation activities at the WLSU #11 remediation site.



Photograph of the well pad area after remediation activities at the WLSU #11 remediation site.



Photograph of the pasture area after remediation activities at the WLSU #11 remediation site.



Photograph of the installation of the groundwater monitoring well at the WLSU #11 remediation site.

# Soil Boring SB-1

Depth Below Ground Surface	Soil Column	Chloride (ppm)	Petroleum Odor	Petroleum Stain	Soil Description	Boring SB-1
0		2,000	None	None	0' - 4' - Brownish Tan Sand, w/ Clay	Date Drilled <u>September 24, 2012</u>
5		6,160	None	None	4' - 9' - Tan Caliche, w/ Sand	Thickness of Bentonite Seal <u>28 Ft</u>
10		3,760	None	None	9' - 20' - Pinkish Tan Sand, F. Grained	Depth of Exploratory Boring <u>28 Ft bgs</u>
15		1,090	None	None	21' - 28' - Tan Sand, F. Grained	Depth to Groundwater _____
20		192	None	None		Ground Water Elevation _____
25	128	None	None			
30						

▼ Indicates the PSH level measured on \_\_\_\_\_  
▼ Indicates the groundwater level measured on \_\_\_\_\_  
○ Indicates samples selected for Laboratory Analysis.  
 PID Head-space reading in ppm obtained with a photo-ionization detector.

### Completion Notes

- 1.) The soil boring was advanced on date using air rotary drilling techniques.
- 2.) The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

**Soil Boring SB-1**

**Energen Resources Corporation**  
**West Lovington Strawn Unit #11**  
**Lea County, New Mexico**  
**NMOCD Ref. # 1RP-10-4-2482**

Basin Environmental Service Technologies, LLC  
 3100 Plains Hwy.  
 Lovington, NM 88260

Prep By: JWJ	Checked By: BJA
October 4, 2012	

# Soil Boring SB-2



### Completion Notes

- 1.) The soil boring was advanced on date using air rotary drilling techniques.
- 2.) The lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.

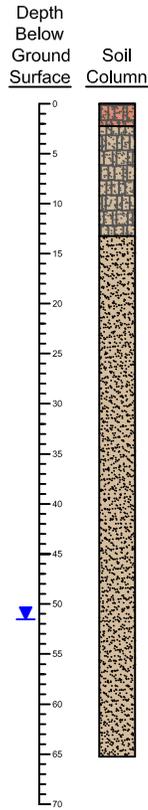
**Soil Boring SB-2**

**Energen Resources Corporation  
West Lovington Strawn Unit #11  
Lea County, New Mexico  
NMOCD Ref. # 1RP-10-4-2482**

Basin Environmental Service Technologies, LLC  
3100 Plains Hwy.  
Lovington, NM 88260

Prep By: JWL	Checked By: BJA
October 4, 2012	

# Soil Boring/Monitor Well Log MW-1

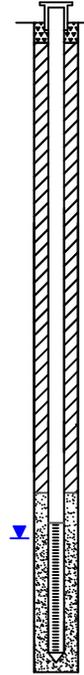


## Soil Description

0' - 2' - Brown fine sand - caliche

2' - 13' - Tan v. fine sand caliche - cement sandstone

13' - 65' - Tan v. fine sand - cement sandstone



Date Drilled October 27, 2014  
 Thickness of Bentonite Seal 45'  
 Depth of Exploratory Boring 65' bgs  
 Depth to Groundwater 51.50'  
 Ground Water Elevation N/A

▼ Indicates the PSH level measured on N/A  
 ▼ Indicates the groundwater level measured on November 20, 2014

-  Grout Surface Seal
-  Bentonite Pellet Seal
-  Sand Pack
-  Screen

## Completion Notes

- 1.) Monitor well was advanced on date using air rotary drilling techniques.
- 2.) Monitor well was constructed with 2" ID, 0.10-inch factory slotted, threaded joint, Schedule 40 PVC pipe.
- 3.) Well is protected with a locked stick-up steel cover and compression cap.
- 4.) Lines between material types shown on the profile log represent approximate boundaries. Actual transitions may be gradual.
- 5.) Depths indicated are referenced from ground surface.

**Soil Boring/  
Monitor Well Log MW-1**

**Energen Resources  
West Lovington Strawn Unit #11  
Lea County, New Mexico  
NMOCD Ref. # 1RP-10-9-2482**

Basin Environmental Service Technologies, LLC  
3100 Plains Hwy.  
Lovington, NM 88260

Prep By: JWL	Checked By: BRB
Decemeber 23, 2014	

October 04, 2012

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WEST LOVINGTON STRAWN UNIT #11

Enclosed are the results of analyses for samples received by the laboratory on 09/26/12 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	09/26/2012	Sampling Date:	09/24/2012
Reported:	10/04/2012	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SB - 1 @ 5' (H202352-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2000</b>	16.0	09/28/2012	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/27/2012	ND	199	99.7	200	3.11	
DRO >C10-C28	<10.0	10.0	09/27/2012	ND	202	101	200	13.6	
EXT DRO >C28-C35	<10.0	10.0	09/27/2012	ND					

<i>Surrogate: 1-Chlorooctane</i>	87.7 %	65.2-140
<i>Surrogate: 1-Chlorooctadecane</i>	90.7 %	63.6-154

**Sample ID: SB - 1 @ 10' (H202352-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>6160</b>	16.0	09/28/2012	ND	416	104	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	09/26/2012	Sampling Date:	09/24/2012
Reported:	10/04/2012	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SB - 1 @ 15' (H202352-03)**

BTEX 8021B		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/03/2012	ND	0.043	85.2	0.0500	7.54		
Toluene*	<0.050	0.050	10/03/2012	ND	0.047	94.4	0.0500	7.50		
Ethylbenzene*	<0.050	0.050	10/03/2012	ND	0.046	92.6	0.0500	7.90		
Total Xylenes*	<0.150	0.150	10/03/2012	ND	0.143	95.4	0.150	7.51		

*Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.5-126*

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>3760</b>	16.0	09/28/2012	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/27/2012	ND	199	99.7	200	3.11		
DRO >C10-C28	<10.0	10.0	09/27/2012	ND	202	101	200	13.6		
EXT DRO >C28-C35	<10.0	10.0	09/27/2012	ND						

*Surrogate: 1-Chlorooctane 95.2 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 97.4 % 63.6-154*
**Sample ID: SB - 1 @ 20' (H202352-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>1090</b>	16.0	09/28/2012	ND	416	104	400	3.92		

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	09/26/2012	Sampling Date:	09/24/2012
Reported:	10/04/2012	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SB - 1 @ 25' (H202352-05)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>192</b>	16.0	09/28/2012	ND	416	104	400	3.92	

**Sample ID: SB - 1 @ 28' (H202352-06)**

BTEX 8021B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/03/2012	ND	0.043	85.2	0.0500	7.54	
Toluene*	<0.050	0.050	10/03/2012	ND	0.047	94.4	0.0500	7.50	
Ethylbenzene*	<0.050	0.050	10/03/2012	ND	0.046	92.6	0.0500	7.90	
Total Xylenes*	<0.150	0.150	10/03/2012	ND	0.143	95.4	0.150	7.51	

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.5-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>128</b>	16.0	09/28/2012	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/04/2012	ND	199	99.7	200	3.11	
DRO >C10-C28	<10.0	10.0	10/04/2012	ND	202	101	200	13.6	
EXT DRO >C28-C35	<10.0	10.0	10/04/2012	ND					

Surrogate: 1-Chlorooctane 72.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 71.0 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

---

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\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



October 03, 2012

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WEST LOVINGTON STRAWN UNIT #11

Enclosed are the results of analyses for samples received by the laboratory on 09/26/12 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	09/26/2012	Sampling Date:	09/24/2012
Reported:	10/03/2012	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SB - 2 @ 5' (H202351-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2160</b>	16.0	09/28/2012	ND	400	100	400	0.00	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/27/2012	ND	199	99.7	200	3.11	
DRO >C10-C28	<10.0	10.0	09/27/2012	ND	202	101	200	13.6	
EXT DRO >C28-C35	<10.0	10.0	09/27/2012	ND					
<i>Surrogate: 1-Chlorooctane</i>		<i>96.0 %</i>	<i>65.2-140</i>						
<i>Surrogate: 1-Chlorooctadecane</i>		<i>102 %</i>	<i>63.6-154</i>						

**Sample ID: SB - 2 @ 10' (H202351-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2560</b>	16.0	09/28/2012	ND	400	100	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	09/26/2012	Sampling Date:	09/24/2012
Reported:	10/03/2012	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SB - 2 @ 15' (H202351-03)**

BTEX 8021B		mg/L		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/03/2012	ND	0.043	85.2	0.0500	7.54	
Toluene*	<0.050	0.050	10/03/2012	ND	0.047	94.4	0.0500	7.50	
Ethylbenzene*	<0.050	0.050	10/03/2012	ND	0.046	92.6	0.0500	7.90	
Total Xylenes*	<0.150	0.150	10/03/2012	ND	0.143	95.4	0.150	7.51	

*Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.5-126*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>992</b>	16.0	09/28/2012	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	09/27/2012	ND	199	99.7	200	3.11	
DRO >C10-C28	<10.0	10.0	09/27/2012	ND	202	101	200	13.6	
EXT DRO >C28-C35	<10.0	10.0	09/27/2012	ND					

*Surrogate: 1-Chlorooctane 87.7 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 91.6 % 63.6-154*
**Sample ID: SB - 2 @ 20' (H202351-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>512</b>	16.0	09/28/2012	ND	400	100	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	09/26/2012	Sampling Date:	09/24/2012
Reported:	10/03/2012	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SB - 2 @ 25' (H202351-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>864</b>	16.0	09/28/2012	ND	400	100	400	0.00	

**Sample ID: SB - 2 @ 30' (H202351-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>704</b>	16.0	09/28/2012	ND	400	100	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	09/26/2012	Sampling Date:	09/24/2012
Reported:	10/03/2012	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SB - 2 @ 35' (H202351-07)**

BTEX 8021B		mg/L		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/03/2012	ND	0.043	85.2	0.0500	7.54		
Toluene*	<0.050	0.050	10/03/2012	ND	0.047	94.4	0.0500	7.50		
Ethylbenzene*	<0.050	0.050	10/03/2012	ND	0.046	92.6	0.0500	7.90		
Total Xylenes*	<0.150	0.150	10/03/2012	ND	0.143	95.4	0.150	7.51		

*Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.5-126*

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>272</b>	16.0	09/28/2012	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	09/27/2012	ND	199	99.7	200	3.11		
DRO >C10-C28	<10.0	10.0	09/27/2012	ND	202	101	200	13.6		
EXT DRO >C28-C35	<10.0	10.0	09/27/2012	ND						

*Surrogate: 1-Chlorooctane 93.2 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 97.8 % 63.6-154*
**Sample ID: SB - 2 @ 38' (H202351-08)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>160</b>	16.0	09/28/2012	ND	416	104	400	3.92		

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report

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Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager





October 08, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 10/04/13 10:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/04/2013	Sampling Date:	10/04/2013
Reported:	10/08/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SSW #1 (H302410-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/04/2013	ND	1.79	89.4	2.00	1.73		
Toluene*	<0.050	0.050	10/04/2013	ND	1.80	89.8	2.00	0.885		
Ethylbenzene*	<0.050	0.050	10/04/2013	ND	1.83	91.5	2.00	2.53		
Total Xylenes*	<0.150	0.150	10/04/2013	ND	5.59	93.1	6.00	1.43		
Total BTEX	<0.300	0.300	10/04/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	10/08/2013	ND	400	100	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/04/2013	ND	213	107	200	4.79		
DRO >C10-C28	<10.0	10.0	10/04/2013	ND	206	103	200	6.28		
EXT DRO >C28-C35	<10.0	10.0	10/04/2013	ND						

Surrogate: 1-Chlorooctane 83.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 86.6 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/04/2013  
 Reported: 10/08/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/04/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: WSW #1 (H302410-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/04/2013	ND	1.79	89.4	2.00	1.73		
Toluene*	<0.050	0.050	10/04/2013	ND	1.80	89.8	2.00	0.885		
Ethylbenzene*	<0.050	0.050	10/04/2013	ND	1.83	91.5	2.00	2.53		
Total Xylenes*	<0.150	0.150	10/04/2013	ND	5.59	93.1	6.00	1.43		
Total BTEX	<0.300	0.300	10/04/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	10/08/2013	ND	400	100	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/04/2013	ND	213	107	200	4.79		
DRO >C10-C28	<10.0	10.0	10/04/2013	ND	206	103	200	6.28		
EXT DRO >C28-C35	<10.0	10.0	10/04/2013	ND						

Surrogate: 1-Chlorooctane 96.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.6 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/04/2013	Sampling Date:	10/04/2013
Reported:	10/08/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: ESW #1 (H302410-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/04/2013	ND	1.79	89.4	2.00	1.73	
Toluene*	<0.050	0.050	10/04/2013	ND	1.80	89.8	2.00	0.885	
Ethylbenzene*	<0.050	0.050	10/04/2013	ND	1.83	91.5	2.00	2.53	
Total Xylenes*	<0.150	0.150	10/04/2013	ND	5.59	93.1	6.00	1.43	
Total BTEX	<0.300	0.300	10/04/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/08/2013	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/04/2013	ND	213	107	200	4.79	
DRO >C10-C28	<10.0	10.0	10/04/2013	ND	206	103	200	6.28	
EXT DRO >C28-C35	<10.0	10.0	10/04/2013	ND					

Surrogate: 1-Chlorooctane 90.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 88.0 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/04/2013  
 Reported: 10/08/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/04/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: ESW #2 (H302410-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/04/2013	ND	1.79	89.4	2.00	1.73		
Toluene*	<0.050	0.050	10/04/2013	ND	1.80	89.8	2.00	0.885		
Ethylbenzene*	<0.050	0.050	10/04/2013	ND	1.83	91.5	2.00	2.53		
Total Xylenes*	<0.150	0.150	10/04/2013	ND	5.59	93.1	6.00	1.43		
Total BTEX	<0.300	0.300	10/04/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 110 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	10/08/2013	ND	400	100	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/04/2013	ND	213	107	200	4.79		
DRO >C10-C28	<10.0	10.0	10/04/2013	ND	206	103	200	6.28		
EXT DRO >C28-C35	<10.0	10.0	10/04/2013	ND						

Surrogate: 1-Chlorooctane 93.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 93.3 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/04/2013  
 Reported: 10/08/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/04/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: EAST STOCKPILE (H302410-05)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1660</b>	16.0	10/08/2013	ND	400	100	400	7.69	

**Sample ID: WEST STOCKPILE (H302410-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>768</b>	16.0	10/08/2013	ND	400	100	400	7.69	

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager





October 11, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 10/09/13 8:33.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/09/2013	Sampling Date:	10/08/2013
Reported:	10/11/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: SSW #2 (H302438-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/09/2013	ND	1.97	98.6	2.00	4.07		
Toluene*	<0.050	0.050	10/09/2013	ND	1.99	99.3	2.00	4.73		
Ethylbenzene*	<0.050	0.050	10/09/2013	ND	2.01	100	2.00	4.36		
Total Xylenes*	<0.150	0.150	10/09/2013	ND	5.88	98.1	6.00	4.75		
Total BTEX	<0.300	0.300	10/09/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	10/09/2013	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/10/2013	ND	188	94.1	200	0.921		
DRO >C10-C28	<10.0	10.0	10/10/2013	ND	187	93.4	200	0.907		
EXT DRO >C28-C35	<10.0	10.0	10/10/2013	ND						

Surrogate: 1-Chlorooctane 104 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/09/2013  
 Reported: 10/11/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/08/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: WSW #2 (H302438-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/09/2013	ND	1.97	98.6	2.00	4.07		
Toluene*	<0.050	0.050	10/09/2013	ND	1.99	99.3	2.00	4.73		
Ethylbenzene*	<0.050	0.050	10/09/2013	ND	2.01	100	2.00	4.36		
Total Xylenes*	<0.150	0.150	10/09/2013	ND	5.88	98.1	6.00	4.75		
Total BTEX	<0.300	0.300	10/09/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	112	16.0	10/09/2013	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/10/2013	ND	188	94.1	200	0.921		
DRO >C10-C28	<10.0	10.0	10/10/2013	ND	187	93.4	200	0.907		
EXT DRO >C28-C35	<10.0	10.0	10/10/2013	ND						

Surrogate: 1-Chlorooctane 94.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 98.1 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/09/2013  
 Reported: 10/11/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/08/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: 10/8 SW STOCKPILE (H302438-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/09/2013	ND	1.97	98.6	2.00	4.07		
Toluene*	<0.050	0.050	10/09/2013	ND	1.99	99.3	2.00	4.73		
Ethylbenzene*	<0.050	0.050	10/09/2013	ND	2.01	100	2.00	4.36		
Total Xylenes*	<0.150	0.150	10/09/2013	ND	5.88	98.1	6.00	4.75		
Total BTEX	<0.300	0.300	10/09/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>224</b>	16.0	10/09/2013	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/10/2013	ND	188	94.1	200	0.921		
<b>DRO &gt;C10-C28</b>	<b>257</b>	10.0	10/10/2013	ND	187	93.4	200	0.907		
<b>EXT DRO &gt;C28-C35</b>	<b>119</b>	10.0	10/10/2013	ND						

Surrogate: 1-Chlorooctane 100 % 65.2-140

Surrogate: 1-Chlorooctadecane 113 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



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Celey D. Keene, Lab Director/Quality Manager

# Cardinal Laboratories

101 East Marland  
Hobbs, NM 88240  
Tel (575) 393-2326  
Fax (575) 393-2476

Company Name: Basin Environmental Service Technologies, LLC Phone #: (575)396-2378

Address: P.O. Box 301 Lovington, NM 88260 Fax #: (575)396-1429

Contact Person: Joel Lowry Email: [jlowry@basinenrv.com](mailto:jlowry@basinenrv.com), [andy.cobb@energen.com](mailto:andy.cobb@energen.com), [whlack@hungerf-horse.com](mailto:whlack@hungerf-horse.com)

Invoice to: Energen Resources Project Name: WLSU #11

Project #: Project Location: Lea Co., NM Sampler Signature: *Joel Lowry*

Project Location: (include state) Lea Co., NM

LAB ID (LAB USE ONLY)	SAMPLE ID	(G)RAB or (C)OMP	# CONTAINERS	MATRIX						PRESERVATIVE METHOD						SAMPLING	
				WATER	SOIL	AIR	SLUDGE	HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE	NONE	DATE	TIME		
1	SSW #2	C	1	X								X			10/8/13	230	
2	WSW #2	C	1	X								X			10/8/13	240	
3	10/8 SW Stockpile	G	1	X								X			10/8/13	250	

LAB USE ONLY	REMARKS:
Intact Y/N	
Headspace Y/N/NA	
Log-in Review	
Carrier #	
<input type="checkbox"/> Dry Weight Basis Required <input type="checkbox"/> TRRP Report Required <input type="checkbox"/> Check if Special Reporting Limits Are Needed	

ANALYSIS REQUEST  
(Circle or Specify Method No.)

Chloride	
TPH 8015M	
BTEX 8021B	
RUSH	
Hold For BTEX, If TPH <100 ppm Run BTEX	
Turn Around Time if different from standard	
Hold	

Relinquished by: *Joel Lowry* Company: Basin Date: 10/9/13 Time: 7:15 Received by: *Joel Lowry* Company: Basin Date: 10/9/13 Time: 7:15 INST OBS COR INST OBS COR INST OBS COR



October 17, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 10/11/13 10:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, flowing "C" and "K".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/11/2013	Sampling Date:	10/11/2013
Reported:	10/17/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: WSW #3 (H302468-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/16/2013	ND	1.90	95.1	2.00	1.49		
Toluene*	<0.050	0.050	10/16/2013	ND	1.97	98.5	2.00	1.87		
Ethylbenzene*	<0.050	0.050	10/16/2013	ND	2.00	100	2.00	1.58		
Total Xylenes*	<0.150	0.150	10/16/2013	ND	5.96	99.4	6.00	1.35		
Total BTEX	<0.300	0.300	10/16/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	10/14/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/11/2013	ND	206	103	200	6.70		
DRO >C10-C28	<10.0	10.0	10/11/2013	ND	197	98.3	200	7.58		
EXT DRO >C28-C35	<10.0	10.0	10/11/2013	ND						

Surrogate: 1-Chlorooctane 82.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 91.0 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/11/2013	Sampling Date:	10/11/2013
Reported:	10/17/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: P-3 (H302468-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/16/2013	ND	1.90	95.1	2.00	1.49		
Toluene*	<0.050	0.050	10/16/2013	ND	1.97	98.5	2.00	1.87		
Ethylbenzene*	<0.050	0.050	10/16/2013	ND	2.00	100	2.00	1.58		
Total Xylenes*	<0.150	0.150	10/16/2013	ND	5.96	99.4	6.00	1.35		
Total BTEX	<0.300	0.300	10/16/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	96.0	16.0	10/14/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/11/2013	ND	206	103	200	6.70		
DRO >C10-C28	<10.0	10.0	10/11/2013	ND	197	98.3	200	7.58		
EXT DRO >C28-C35	<10.0	10.0	10/11/2013	ND						

Surrogate: 1-Chlorooctane 87.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 93.7 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/11/2013  
 Reported: 10/17/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/11/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: P-6 (H302468-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/16/2013	ND	1.90	95.1	2.00	1.49		
Toluene*	<0.050	0.050	10/16/2013	ND	1.97	98.5	2.00	1.87		
Ethylbenzene*	<0.050	0.050	10/16/2013	ND	2.00	100	2.00	1.58		
Total Xylenes*	<0.150	0.150	10/16/2013	ND	5.96	99.4	6.00	1.35		
Total BTEX	<0.300	0.300	10/16/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	10/14/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/11/2013	ND	206	103	200	6.70		
DRO >C10-C28	<10.0	10.0	10/11/2013	ND	197	98.3	200	7.58		
EXT DRO >C28-C35	<10.0	10.0	10/11/2013	ND						

Surrogate: 1-Chlorooctane 106 % 65.2-140

Surrogate: 1-Chlorooctadecane 110 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/11/2013  
 Reported: 10/17/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/11/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: P-9 (H302468-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/16/2013	ND	1.90	95.1	2.00	1.49	
Toluene*	<0.050	0.050	10/16/2013	ND	1.97	98.5	2.00	1.87	
Ethylbenzene*	<0.050	0.050	10/16/2013	ND	2.00	100	2.00	1.58	
Total Xylenes*	<0.150	0.150	10/16/2013	ND	5.96	99.4	6.00	1.35	
Total BTEX	<0.300	0.300	10/16/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.2 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>144</b>	16.0	10/14/2013	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/11/2013	ND	206	103	200	6.70	
DRO >C10-C28	<10.0	10.0	10/11/2013	ND	197	98.3	200	7.58	
EXT DRO >C28-C35	<10.0	10.0	10/11/2013	ND					

Surrogate: 1-Chlorooctane 97.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 104 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager





October 22, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 10/18/13 15:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/18/2013	Sampling Date:	10/18/2013
Reported:	10/22/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: NORTH FLOOR #1 @ 5' (H302529-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/21/2013	ND	2.01	101	2.00	3.40	
Toluene*	<0.050	0.050	10/21/2013	ND	2.11	106	2.00	1.78	
Ethylbenzene*	<0.050	0.050	10/21/2013	ND	2.14	107	2.00	3.66	
Total Xylenes*	<0.150	0.150	10/21/2013	ND	6.39	106	6.00	4.56	
Total BTEX	<0.300	0.300	10/21/2013	ND					

*Surrogate: 4-Bromofluorobenzene (PID) 90.1 % 89.4-126*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2120</b>	16.0	10/21/2013	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46	
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77	
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND					

*Surrogate: 1-Chlorooctane 111 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 120 % 63.6-154*

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/18/2013	Sampling Date:	10/18/2013
Reported:	10/22/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: NORTH FLOOR #2 @ 5' (H302529-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/21/2013	ND	2.01	101	2.00	3.40	
Toluene*	<0.050	0.050	10/21/2013	ND	2.11	106	2.00	1.78	
Ethylbenzene*	<0.050	0.050	10/21/2013	ND	2.14	107	2.00	3.66	
Total Xylenes*	<0.150	0.150	10/21/2013	ND	6.39	106	6.00	4.56	
Total BTEX	<0.300	0.300	10/21/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2000</b>	16.0	10/21/2013	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46	
<b>DRO &gt;C10-C28</b>	<b>99.5</b>	10.0	10/21/2013	ND	191	95.4	200	2.77	
<b>EXT DRO &gt;C28-C35</b>	<b>71.5</b>	10.0	10/21/2013	ND					

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 129 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/22/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: NORTH FLOOR #3 @ 5' (H302529-03)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.01	101	2.00	3.40		
Toluene*	<0.050	0.050	10/22/2013	ND	2.11	106	2.00	1.78		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	3.66		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.39	106	6.00	4.56		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>2040</b>	16.0	10/21/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46		
<b>DRO &gt;C10-C28</b>	<b>66.6</b>	10.0	10/21/2013	ND	191	95.4	200	2.77		
<b>EXT DRO &gt;C28-C35</b>	<b>48.2</b>	10.0	10/21/2013	ND						

Surrogate: 1-Chlorooctane 98.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 113 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/22/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: NE FLOOR @ 10' (H302529-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.01	101	2.00	3.40		
Toluene*	<0.050	0.050	10/22/2013	ND	2.11	106	2.00	1.78		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	3.66		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.39	106	6.00	4.56		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>48.0</b>	16.0	10/21/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46		
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77		
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND						

Surrogate: 1-Chlorooctane 84.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 88.4 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/22/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: NW FLOOR @ 10' (H302529-05)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.01	101	2.00	3.40		
Toluene*	<0.050	0.050	10/22/2013	ND	2.11	106	2.00	1.78		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	3.66		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.39	106	6.00	4.56		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>80.0</b>	16.0	10/21/2013	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/22/2013	ND	201	100	200	3.46		
DRO >C10-C28	<10.0	10.0	10/22/2013	ND	191	95.4	200	2.77		
EXT DRO >C28-C35	<10.0	10.0	10/22/2013	ND						

Surrogate: 1-Chlorooctane 86.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.5 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/22/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SE FLOOR @ 10' (H302529-06)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.01	101	2.00	3.40		
Toluene*	<0.050	0.050	10/22/2013	ND	2.11	106	2.00	1.78		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	3.66		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.39	106	6.00	4.56		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.7 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>880</b>	16.0	10/21/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46		
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77		
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND						

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 110 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/22/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SW FLOOR @ 10' (H302529-07)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.01	101	2.00	3.40		
Toluene*	<0.050	0.050	10/22/2013	ND	2.11	106	2.00	1.78		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	3.66		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.39	106	6.00	4.56		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>320</b>	16.0	10/21/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46		
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77		
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND						

Surrogate: 1-Chlorooctane 93.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 99.0 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager





October 23, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 10/18/13 15:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/18/2013	Sampling Date:	10/18/2013
Reported:	10/23/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: NSW #B (H302530-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.01	101	2.00	3.40		
Toluene*	<0.050	0.050	10/22/2013	ND	2.11	106	2.00	1.78		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	3.66		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.39	106	6.00	4.56		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 94.2 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	10/21/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46		
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77		
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND						

Surrogate: 1-Chlorooctane 103 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/23/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: WSW #4D (H302530-02)**

BTEX 8021B		mg/kg		Analyzed By: MS				A-01		
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.01	101	2.00	3.40		
Toluene*	<0.050	0.050	10/22/2013	ND	2.11	106	2.00	1.78		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	3.66		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.39	106	6.00	4.56		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 86.1 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>304</b>	16.0	10/21/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46		
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77		
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND						

Surrogate: 1-Chlorooctane 103 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/23/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: WSW #4E (H302530-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.577	
Toluene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.813	
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.16	108	2.00	0.211	
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.37	106	6.00	0.365	
Total BTEX	<0.300	0.300	10/22/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>96.0</b>	16.0	10/21/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46	
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77	
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND					

Surrogate: 1-Chlorooctane 97.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 105 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/18/2013  
 Reported: 10/23/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: EAST WALL (ROAD) (H302530-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.577	
Toluene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.813	
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.16	108	2.00	0.211	
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.37	106	6.00	0.365	
Total BTEX	<0.300	0.300	10/22/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>4720</b>	16.0	10/21/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/21/2013	ND	201	100	200	3.46	
DRO >C10-C28	<10.0	10.0	10/21/2013	ND	191	95.4	200	2.77	
EXT DRO >C28-C35	<10.0	10.0	10/21/2013	ND					

Surrogate: 1-Chlorooctane 86.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.2 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- A-01 Surrogate outside historical limits but within method limits of 80-120% recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM450Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager

LAB Order ID # **H302530**

**Cardinal Laboratories**  
 101 East Marland  
 Hobbs, NM 88240  
 Tel (575) 393-2326  
 Fax (575) 393-2476

Company Name: **Basin Environmental Service Technologies, LLC** Phone #: **(575)396-2378**  
 Address: **P.O. Box 301 Lovington, NM 88260** Fax #: **(575)396-1429**  
 Contract Person: **Joel Lowry** E-mail: **jlowry@basinenv.com, andy.cobb@energen.com, vblack@jungfr-horse.com**

Invoice to: **Energen Resources** Project Name: **WLSU #11**  
 Project #: \_\_\_\_\_ Project Location: **Lea Co., NM**  
 (include state)

Project #: \_\_\_\_\_  
 Project Location: **Lea Co., NM**  
 (include state)

LAB ID (LAB USE ONLY)	SAMPLE ID	(G)RAB or (C)OMP	# CONTAINERS	MATRIX				PRESERVATIVE METHOD					DATE	TIME	Chloride	TPH 8015M	BTEX 8021B
				WATER	SOIL	AIR	SLUDGE	HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE					
1	NSW #5	G	1	X	X	X	X	X	X	X	X	10/18/13	1010	X	X	X	
2	WSW #4d	G	1	X	X	X	X	X	X	X	X	10/18/13	1020	X	X	X	
3	WSW #4e	G	1	X	X	X	X	X	X	X	X	10/18/13	1030	X	X	X	
4	East Wall (Road)	G	1	X	X	X	X	X	X	X	X	10/18/13	1040	X	X	X	

Relinquished by: **Joel Lowry** Company: \_\_\_\_\_ Date: **10/18/13** Time: **2:40** INST \_\_\_\_\_ OBS \_\_\_\_\_ COR \_\_\_\_\_  
 Received by: \_\_\_\_\_ Company: \_\_\_\_\_ Date: **10/18/13** Time: **2:40** INST \_\_\_\_\_ OBS \_\_\_\_\_ COR \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date: **10/18/13** Time: **3:35** INST \_\_\_\_\_ OBS \_\_\_\_\_ COR \_\_\_\_\_  
 Received by: **Walter Henderson** Company: \_\_\_\_\_ Date: **10/18/13** Time: **3:35** INST \_\_\_\_\_ OBS \_\_\_\_\_ COR \_\_\_\_\_

**ANALYSIS REQUEST**  
 (Circle or Specify Method No.)

RUSH  
 Hold For BTEX, if TPH <100 ppm Run BTEX  
 Turn Around Time if different from standard  
 Hold

**LAB USE ONLY**

Intact Y/N  
 Headspace Y/N/NA

REMARKS:  
 Dry Weight Basis Required  
 TRRP Report Required  
 Check if Special Reporting Limits Are Needed



October 23, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 10/21/13 8:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/21/2013	Sampling Date:	10/18/2013
Reported:	10/23/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: NSW #2 (H302536-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.577		
Toluene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.813		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.16	108	2.00	0.211		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.37	106	6.00	0.365		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	10/21/2013	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/22/2013	ND	200	99.9	200	3.36		
DRO >C10-C28	<10.0	10.0	10/22/2013	ND	192	95.9	200	2.97		
EXT DRO >C28-C35	<10.0	10.0	10/22/2013	ND						

Surrogate: 1-Chlorooctane 116 % 65.2-140

Surrogate: 1-Chlorooctadecane 128 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/21/2013  
 Reported: 10/23/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: NSW #3 (H302536-02)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.577		
Toluene*	<0.050	0.050	10/22/2013	ND	2.14	107	2.00	0.813		
Ethylbenzene*	<0.050	0.050	10/22/2013	ND	2.16	108	2.00	0.211		
Total Xylenes*	<0.150	0.150	10/22/2013	ND	6.37	106	6.00	0.365		
Total BTEX	<0.300	0.300	10/22/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>144</b>	16.0	10/21/2013	ND	432	108	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/22/2013	ND	200	99.9	200	3.36		
DRO >C10-C28	<10.0	10.0	10/22/2013	ND	192	95.9	200	2.97		
EXT DRO >C28-C35	<10.0	10.0	10/22/2013	ND						

Surrogate: 1-Chlorooctane 125 % 65.2-140

Surrogate: 1-Chlorooctadecane 140 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager



# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name: <u>Basin Environmental</u>		P.O. #:	
Project Manager: <u>Souley</u>		Company: <u>Energan</u>	
Address:		Attn:	
City:	State:	Address:	Zip:
Phone #:	Fax #:	City:	State:
Project #:	Project Owner:	Phone #:	Zip:
Project Name: <u>WS1A #11</u>		Fax #:	
Project Location: <u>Levy NM</u>			
Sampler Name: <u>Arion Taylor</u>			

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						DATE	TIME	ANALYSIS REQUEST
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:			
<u>H902531B</u>	<u>NSW #2</u>	<u>6</u>	<u>1</u>			<u>X</u>			<u>10/14</u>	<u>1:25</u>	<u>chloride</u>	
	<u>2-NSW #3</u>	<u>6</u>	<u>1</u>			<u>Y</u>			<u>10/14</u>	<u>1:55</u>	<u>TPH 8015M</u>	
											<u>BTEX 8021B</u>	

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 90 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: <u>[Signature]</u>	Date: <u>10/21</u>	Received By: <u>[Signature]</u>	Date: <u>10/21</u>
Time: <u>3:30</u>	Time: <u>3:30</u>	Time: <u>3:30</u>	Time: <u>3:30</u>
Delivered By: (Circle One) Sampler - UPS - Bus - Other: <u>2.42</u>	Sample Condition Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CHECKED BY: <u>[Signature]</u>	REMARKS:
Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Phone #:	Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No	Add'l Fax #:

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326 #94



October 30, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 10/24/13 8:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-11-3. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	10/24/2013	Sampling Date:	10/23/2013
Reported:	10/30/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: C-1 (H302585-01)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/28/2013	ND	2.16	108	2.00	2.91		
Toluene*	<0.050	0.050	10/28/2013	ND	2.20	110	2.00	2.57		
Ethylbenzene*	<0.050	0.050	10/28/2013	ND	2.21	110	2.00	2.96		
Total Xylenes*	<0.150	0.150	10/28/2013	ND	6.39	106	6.00	3.57		
Total BTEX	<0.300	0.300	10/28/2013	ND						

*Surrogate: 4-Bromofluorobenzene (PID) 107 % 89.4-126*

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>96.0</b>	16.0	10/25/2013	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	10/28/2013	ND	192	96.0	200	5.98		
DRO >C10-C28	<10.0	10.0	10/28/2013	ND	182	91.0	200	8.63		
EXT DRO >C28-C35	<10.0	10.0	10/28/2013	ND						

*Surrogate: 1-Chlorooctane 93.5 % 65.2-140*
*Surrogate: 1-Chlorooctadecane 97.2 % 63.6-154*

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/24/2013  
 Reported: 10/30/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/23/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: C-2 (H302585-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/29/2013	ND	2.02	101	2.00	0.429	
Toluene*	<0.050	0.050	10/29/2013	ND	2.00	100	2.00	0.174	
Ethylbenzene*	<0.050	0.050	10/29/2013	ND	2.00	99.8	2.00	0.532	
Total Xylenes*	<0.150	0.150	10/29/2013	ND	5.85	97.5	6.00	0.0606	
Total BTEX	<0.300	0.300	10/29/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	10/28/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/28/2013	ND	192	96.0	200	5.98	
DRO >C10-C28	<10.0	10.0	10/28/2013	ND	182	91.0	200	8.63	
EXT DRO >C28-C35	<10.0	10.0	10/28/2013	ND					

Surrogate: 1-Chlorooctane 93.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.0 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/24/2013  
 Reported: 10/30/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/23/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: C-3 (H302585-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/29/2013	ND	2.02	101	2.00	0.429	
Toluene*	<0.050	0.050	10/29/2013	ND	2.00	100	2.00	0.174	
Ethylbenzene*	<0.050	0.050	10/29/2013	ND	2.00	99.8	2.00	0.532	
Total Xylenes*	<0.150	0.150	10/29/2013	ND	5.85	97.5	6.00	0.0606	
Total BTEX	<0.300	0.300	10/29/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/28/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/28/2013	ND	184	91.8	200	7.64	
DRO >C10-C28	<10.0	10.0	10/28/2013	ND	175	87.6	200	10.2	
EXT DRO >C28-C35	<10.0	10.0	10/28/2013	ND					

Surrogate: 1-Chlorooctane 93.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 95.5 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/24/2013  
 Reported: 10/30/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/23/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: C-4 (H302585-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/29/2013	ND	1.68	83.8	2.00	3.80	
Toluene*	<0.050	0.050	10/29/2013	ND	1.71	85.5	2.00	3.52	
Ethylbenzene*	<0.050	0.050	10/29/2013	ND	1.72	86.0	2.00	3.73	
Total Xylenes*	<0.150	0.150	10/29/2013	ND	5.10	85.0	6.00	3.31	
Total BTEX	<0.300	0.300	10/29/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	10/28/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/28/2013	ND	184	91.8	200	7.64	
DRO >C10-C28	<10.0	10.0	10/28/2013	ND	175	87.6	200	10.2	
EXT DRO >C28-C35	<10.0	10.0	10/28/2013	ND					

Surrogate: 1-Chlorooctane 91.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 93.7 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/24/2013  
 Reported: 10/30/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/23/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: P-5 (H302585-05)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/29/2013	ND	1.68	83.8	2.00	3.80	
Toluene*	<0.050	0.050	10/29/2013	ND	1.71	85.5	2.00	3.52	
Ethylbenzene*	<0.050	0.050	10/29/2013	ND	1.72	86.0	2.00	3.73	
Total Xylenes*	<0.150	0.150	10/29/2013	ND	5.10	85.0	6.00	3.31	
Total BTEX	<0.300	0.300	10/29/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>288</b>	16.0	10/28/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>26.9</b>	10.0	10/28/2013	ND	184	91.8	200	7.64	
<b>DRO &gt;C10-C28</b>	<b>342</b>	10.0	10/28/2013	ND	175	87.6	200	10.2	
EXT DRO >C28-C35	<10.0	10.0	10/28/2013	ND					

Surrogate: 1-Chlorooctane 124 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.8 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 10/24/2013  
 Reported: 10/30/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 10/23/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: P-7 (H302585-06)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/29/2013	ND	1.68	83.8	2.00	3.80	
Toluene*	<0.050	0.050	10/29/2013	ND	1.71	85.5	2.00	3.52	
Ethylbenzene*	<0.050	0.050	10/29/2013	ND	1.72	86.0	2.00	3.73	
Total Xylenes*	<0.150	0.150	10/29/2013	ND	5.10	85.0	6.00	3.31	
Total BTEX	<0.300	0.300	10/29/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>224</b>	16.0	10/28/2013	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	10/28/2013	ND	184	91.8	200	7.64	
DRO >C10-C28	<10.0	10.0	10/28/2013	ND	175	87.6	200	10.2	
EXT DRO >C28-C35	<10.0	10.0	10/28/2013	ND					

Surrogate: 1-Chlorooctane 74.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 77.1 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager





November 25, 2013

BEN J. ARGUIJO

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 11/19/13 10:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Mike Snyder". The signature is fluid and cursive, with the first name "Mike" and last name "Snyder" clearly legible.

Mike Snyder

Organic Supervisor

**Analytical Results For:**

 Basin Environmental Service  
 BEN J. ARGUIJO  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	11/19/2013	Sampling Date:	11/18/2013
Reported:	11/25/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: PAD NE FLOOR @ 2.5' (H302816-01)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/20/2013	ND	2.13	107	2.00	4.28	
Toluene*	<0.050	0.050	11/20/2013	ND	2.14	107	2.00	5.97	
Ethylbenzene*	<0.050	0.050	11/20/2013	ND	2.15	107	2.00	5.77	
Total Xylenes*	<0.150	0.150	11/20/2013	ND	6.50	108	6.00	8.38	
Total BTEX	<0.300	0.300	11/20/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>288</b>	16.0	11/21/2013	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/21/2013	ND	190	95.0	200	13.1	
DRO >C10-C28	<10.0	10.0	11/21/2013	ND	180	89.8	200	4.80	
EXT DRO >C28-C35	<10.0	10.0	11/21/2013	ND					

Surrogate: 1-Chlorooctane 72.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 86.2 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder, Organic Supervisor

**Analytical Results For:**

 Basin Environmental Service  
 BEN J. ARGUIJO  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 11/19/2013  
 Reported: 11/25/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 11/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: PAD SE FLOOR @ 2.5' (H302816-02)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/20/2013	ND	2.13	107	2.00	4.28	
Toluene*	<0.050	0.050	11/20/2013	ND	2.14	107	2.00	5.97	
Ethylbenzene*	<0.050	0.050	11/20/2013	ND	2.15	107	2.00	5.77	
Total Xylenes*	<0.150	0.150	11/20/2013	ND	6.50	108	6.00	8.38	
Total BTEX	<0.300	0.300	11/20/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 113 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>80.0</b>	16.0	11/21/2013	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/21/2013	ND	190	95.0	200	13.1	
<b>DRO &gt;C10-C28</b>	<b>28.3</b>	10.0	11/21/2013	ND	180	89.8	200	4.80	
EXT DRO >C28-C35	<10.0	10.0	11/21/2013	ND					

Surrogate: 1-Chlorooctane 81.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 91.6 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder, Organic Supervisor

**Analytical Results For:**

 Basin Environmental Service  
 BEN J. ARGUIJO  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 11/19/2013  
 Reported: 11/25/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 11/18/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: PAD NW FLOOR @ 2.5' (H302816-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/20/2013	ND	2.13	107	2.00	4.28	
Toluene*	<0.050	0.050	11/20/2013	ND	2.14	107	2.00	5.97	
Ethylbenzene*	<0.050	0.050	11/20/2013	ND	2.15	107	2.00	5.77	
Total Xylenes*	<0.150	0.150	11/20/2013	ND	6.50	108	6.00	8.38	
Total BTEX	<0.300	0.300	11/20/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 112 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>304</b>	16.0	11/21/2013	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/21/2013	ND	190	95.0	200	13.1	
DRO >C10-C28	<10.0	10.0	11/21/2013	ND	180	89.8	200	4.80	
EXT DRO >C28-C35	<10.0	10.0	11/21/2013	ND					

Surrogate: 1-Chlorooctane 78.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 83.1 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Mike Snyder, Organic Supervisor

**Analytical Results For:**

 Basin Environmental Service  
 BEN J. ARGUIJO  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	11/19/2013	Sampling Date:	11/18/2013
Reported:	11/25/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: PAD SW FLOOR @ 2.5' (H302816-04)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/22/2013	ND	2.30	115	2.00	3.57	
Toluene*	<0.050	0.050	11/22/2013	ND	2.32	116	2.00	2.68	
Ethylbenzene*	<0.050	0.050	11/22/2013	ND	2.35	118	2.00	2.65	
Total Xylenes*	<0.150	0.150	11/22/2013	ND	6.95	116	6.00	2.08	
Total BTEX	<0.300	0.300	11/22/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>240</b>	16.0	11/21/2013	ND	432	108	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/21/2013	ND	190	95.0	200	13.1	
DRO >C10-C28	<10.0	10.0	11/21/2013	ND	180	89.8	200	4.80	
EXT DRO >C28-C35	<10.0	10.0	11/21/2013	ND					

Surrogate: 1-Chlorooctane 92.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.5 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Mike Snyder, Organic Supervisor

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

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---

Mike Snyder, Organic Supervisor





December 02, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 11/21/13 12:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, flowing "C" and "K".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 11/21/2013  
 Reported: 12/02/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 11/20/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: WELL PAD NSW (H302853-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>192</b>	16.0	12/02/2013	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/24/2013	ND	171	85.5	200	5.54	
DRO >C10-C28	<10.0	10.0	11/24/2013	ND	161	80.5	200	6.94	
EXT DRO >C28-C35	<10.0	10.0	11/24/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>101 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>100 %</i>	<i>63.6-154</i>							

**Sample ID: WELL PAD ESW (H302853-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>96.0</b>	16.0	12/02/2013	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/24/2013	ND	192	96.2	200	3.40	
DRO >C10-C28	<10.0	10.0	11/24/2013	ND	197	98.6	200	2.56	
EXT DRO >C28-C35	<10.0	10.0	11/24/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>88.2 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>86.0 %</i>	<i>63.6-154</i>							

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	11/21/2013	Sampling Date:	11/20/2013
Reported:	12/02/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: WELL PAD SSW (H302853-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>144</b>	16.0	12/02/2013	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/24/2013	ND	192	96.2	200	3.40	
<b>DRO &gt;C10-C28</b>	<b>12.7</b>	10.0	11/24/2013	ND	197	98.6	200	2.56	
EXT DRO >C28-C35	<10.0	10.0	11/24/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	93.3 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>	88.8 %	63.6-154							

**Sample ID: WELL PAD WSW (H302853-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>96.0</b>	16.0	12/02/2013	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/24/2013	ND	192	96.2	200	3.40	
<b>DRO &gt;C10-C28</b>	<b>1690</b>	10.0	11/24/2013	ND	197	98.6	200	2.56	
<b>EXT DRO &gt;C28-C35</b>	<b>260</b>	10.0	11/24/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	96.9 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>	128 %	63.6-154							

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

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- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager

LAB Order ID # 1307853

# Cardinal Laboratories

101 East Marland  
Hobbs, NM 88240  
Tel (575) 393-2326  
Fax (575) 393-2476

Company Name: Basin Environmental Service Technologies, LLC Phone #: (575) 396-2378

Address: P.O. Box 301  
Lovington, NM 88260 Fax #: (575) 396-1429

Contact Person: Joel Lowry E-mail: [jlowry@basinenv.com](mailto:jlowry@basinenv.com)  
[andy.cobb@emergen.com](mailto:andy.cobb@emergen.com) [wblack@hunger-horse.com](mailto:wblack@hunger-horse.com)

Invoice to: Emergen Resources Project Name: WLSU #11

Project #: Project Location: Lea Co., NM Sampler Signature:

LAB ID (LAB USE ONLY)	SAMPLE ID	(G)RAB or (C)OMP	# CONTAINERS	MATRIX				PRESERVATIVE METHOD				SAMPLING	
				WATER	SOIL	AIR	SLUDGE	HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE	NONE
	Well Pad NSW	G	1	X								11/20/13	1200
	Well Pad ESW	G	1	X								11/20/13	1210
	Well Pad SSW	G	1	X								11/20/13	1220
	Well Pad WSW	G	1	X								11/20/13	1230

Relinquished by: Joel Lowry Company: Basin Environmental Date: 11/21/13 Time: 7:30 INST 514 OBS 9.7 °C  
 Received by: Joel Lowry Company: Basin Environmental Date: 11/21/13 Time: 7:30 INST 514 OBS 9.7 °C  
 Relinquished by: Joel Lowry Company: Basin Environmental Date: 11/21/13 Time: 12:55 INST 514 OBS 9.7 °C  
 Received by: Joel Lowry Company: Basin Environmental Date: 11/21/13 Time: 12:55 INST 514 OBS 9.7 °C

## ANALYSIS REQUEST (Circle or Specify Method No.)

Chloride	
TPH 8015M	
BTEX 8021B	
RUSH	
Hold For BTEX, if TPH <100 ppm Run BTEX	
Turn Around Time if different from standard	
Hold	

LAB USE ONLY  
 Intact: Y/N  
 Headspace: Y/N/NA  
 Log-in/Review: \_\_\_\_\_  
 Carrier #: \_\_\_\_\_  
 REMARKS:  
 Dry Weight Basis Required  
 TRRP Report Required  
 Check If Special Reporting Limits Are Needed



December 04, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 11/21/13 12:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

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Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 11/21/2013  
 Reported: 12/04/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 11/20/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: ROAD NSW (H302854-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>208</b>	16.0	11/26/2013	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2013	ND	192	96.2	200	3.40	
DRO >C10-C28	<10.0	10.0	12/03/2013	ND	197	98.6	200	2.56	
EXT DRO >C28-C35	<10.0	10.0	12/03/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>109 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>109 %</i>	<i>63.6-154</i>							

**Sample ID: ROAD ESW (H302854-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>&lt;16.0</b>	16.0	11/26/2013	ND	416	104	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2013	ND	192	96.2	200	3.40	
DRO >C10-C28	<10.0	10.0	12/03/2013	ND	197	98.6	200	2.56	
EXT DRO >C28-C35	<10.0	10.0	12/03/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>108 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>109 %</i>	<i>63.6-154</i>							

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 11/21/2013  
 Reported: 12/04/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 11/20/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: F. P. A #2 @ 5' (H302854-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/25/2013	ND	2.14	107	2.00	0.779	
Toluene*	<0.050	0.050	11/25/2013	ND	2.10	105	2.00	0.448	
Ethylbenzene*	<0.050	0.050	11/25/2013	ND	2.05	103	2.00	0.544	
Total Xylenes*	<0.150	0.150	11/25/2013	ND	6.00	99.9	6.00	0.513	
Total BTEX	<0.300	0.300	11/25/2013	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>240</b>	16.0	11/26/2013	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/03/2013	ND	192	96.2	200	3.40	
DRO >C10-C28	<10.0	10.0	12/03/2013	ND	197	98.6	200	2.56	
EXT DRO >C28-C35	<10.0	10.0	12/03/2013	ND					

Surrogate: 1-Chlorooctane 109 % 65.2-140

Surrogate: 1-Chlorooctadecane 110 % 63.6-154

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	11/21/2013	Sampling Date:	11/20/2013
Reported:	12/04/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: F. P. B #1 @ 3' (H302854-04)**

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/25/2013	ND	2.14	107	2.00	0.779		
Toluene*	<0.050	0.050	11/25/2013	ND	2.10	105	2.00	0.448		
Ethylbenzene*	<0.050	0.050	11/25/2013	ND	2.05	103	2.00	0.544		
Total Xylenes*	<0.150	0.150	11/25/2013	ND	6.00	99.9	6.00	0.513		
Total BTEX	<0.300	0.300	11/25/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 111 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>Chloride</b>	<b>192</b>	16.0	11/26/2013	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/03/2013	ND	192	96.2	200	3.40		
DRO >C10-C28	<10.0	10.0	12/03/2013	ND	197	98.6	200	2.56		
EXT DRO >C28-C35	<10.0	10.0	12/03/2013	ND						

Surrogate: 1-Chlorooctane 114 % 65.2-140

Surrogate: 1-Chlorooctadecane 113 % 63.6-154

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager





December 03, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 11/25/13 12:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 11/25/2013  
 Reported: 12/03/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 11/22/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: 11/21 STOCKPILE (H302884-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	976	16.0	12/02/2013	ND	432	108	400	3.77	

**Sample ID: ROAD ESW #2 (H302884-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2080	16.0	12/02/2013	ND	432	108	400	3.77	

**Sample ID: ROAD SSW (H302884-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	12/02/2013	ND	432	108	400	3.77	

**Sample ID: F. P. A WSW #1 (H302884-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1360	16.0	12/02/2013	ND	432	108	400	3.77	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	11/25/2013	Sampling Date:	11/22/2013
Reported:	12/03/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: F. P. A ESW #1 (H302884-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>304</b>	16.0	12/02/2013	ND	432	108	400	3.77	

**Sample ID: F. P. A WSW #2 (H302884-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>3840</b>	16.0	12/02/2013	ND	432	108	400	3.77	

**Sample ID: F. P. A ESW #2 (H302884-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1780</b>	16.0	12/02/2013	ND	432	108	400	3.77	

**Sample ID: F. P. A WSW #3 (H302884-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1230</b>	16.0	12/02/2013	ND	432	108	400	3.77	

**Sample ID: F. P. A ESW #3 (H302884-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2560</b>	16.0	12/02/2013	ND	432	108	400	3.77	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 11/25/2013  
 Reported: 12/03/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 11/22/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: F. P. A NSW (H302884-10)**
**Chloride, SM4500Cl-B**
**mg/kg**
**Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>784</b>	16.0	12/02/2013	ND	432	108	400	3.77	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager

LAB Order ID # **H302884**

# Cardinal Laboratories

101 East Mainland  
Hobbs, NM 88240  
Tel (575) 393-2326  
Fax (575) 393-2476

Company Name: **Basin Environmental Service Technologies, LLC** Phone #: **(575)396-2378**

Address: **P.O. Box 301  
Lovington, NM 88260** Fax #: **(575)396-1429**

Contact Person: **Joel Lowry** Email: **mlowry@basinenv.com,  
andy.cobb@energen.com, vblack@hungry-  
horse.com**

Invoice to: **Energen Resources**

Project #: **WLSU #11**

Project Location: **Lee Co., NM** Sampler Signature: \_\_\_\_\_

LAB ID (LAB USE ONLY)	SAMPLE ID	(G)RAB or (C)OMP	# CONTAINERS	MATRIX				PRESERVATIVE METHOD					SAMPLING		
				WATER	SOIL	AIR	SLUDGE	HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE	NONE	DATE	TIME
1	1/21 Stockpile	G	1	X										11/22/13	800
2	Road ESW #2	G	1	X										11/22/13	755
3	Road SSW	G	1	X										11/22/13	805
4	F.P.a WSW #1	G	1	X										11/22/13	820
5	F.P.a ESW #1	G	1	X										11/22/13	815
6	F.P.a WSW #2	G	1	X										11/22/13	810
7	F.P.a ESW #2	G	1	X										11/22/13	825
8	F.P.a WSW #3	G	1	X										11/22/13	830
9	F.P.a ESW #3	G	1	X										11/22/13	835
10	F.P.a NSW	G	1	X										11/22/13	840

ANALYSIS REQUEST  
(Circle or Specify Method No.)

Chloride	
TPH 8015M	
BTEX 8021B	
RUSH	
Hold For BTEX, if TPH <100 ppm Run BTEX	
Turn Around Time if different from standard	
Hold	

Relinquished by: **Joel Lowry** Company: **Basin Env** Date: **11/25/13** Time: \_\_\_\_\_

Received by: **Joel Lowry** Company: **Basin Env** Date: **11/25/13** Time: **12:30** INST **54** OBS \_\_\_\_\_ COR \_\_\_\_\_

LAB USE ONLY  
Intact Y/N  
Headspace Y/N/NA

REMARKS:  
 Dry Weight Basis Required  
 TRRP Report Required  
 Check if Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions  
ORIGINAL COPY



December 09, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 12/04/13 10:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

 Received: 12/04/2013  
 Reported: 12/09/2013  
 Project Name: WLSU #11  
 Project Number: NONE GIVEN  
 Project Location: LEA COUNTY, NM

 Sampling Date: 12/04/2013  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: ROAD ESW #2B (H302936-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>240</b>	16.0	12/09/2013	ND	432	108	400	3.64	

**Sample ID: PAD NW FLOOR @ 3.5' (H302936-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>48.0</b>	16.0	12/09/2013	ND	432	108	400	3.64	

**Sample ID: PAD NE FLOOR @ 3.5' (H302936-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>176</b>	16.0	12/09/2013	ND	432	108	400	3.64	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager

LAB Order ID # H302936

# Cardinal Laboratories

101 East Mainland  
Hobbs, NM 88240  
Tel (575) 393-2326  
Fax (575) 393-2476

Company Name: Basin Environmental Service Technologies, LLC Phone #: (575)396-2378

Address: P.O. Box 301 Lovington, NM 88260 Fax #: (575)396-1429

Contact Person: Joel Lowry Email: jlowry@basinenrv.com, andy.cobb@emergen.com, vblack@jungrv-horse.com

Invoice to: Energen Resources Project Name: WLSU #11

Project Location: Lea Co., NM Sampler Signature: *Joel Lowry*

LAB ID (LAB USE ONLY)	SAMPLE ID	(G)RAB or (C)OMP	# CONTAINERS	MATRIX					PRESERVATIVE METHOD					SAMPLING			
				WATER	SOIL	AIR	SLUDGE	HCL	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	ICE	NONE	DATE	TIME		
	Road ESW #2b		1	X							X			12/4/13	800	X	
	Pad NW Floor @ 3.5'		1	X							X			12/4/13	805	X	
	Pad NE Floor @ 3.5'		1	X							X			12/4/13	810	X	

Relinquished by: Joel Lowry Company: Basin Date: 12/4/13 Time:   
 Received by: Joel Lowry Company: Basin Date: 12/4/13 Time: 10:20  
 Relinquished by:  Company:  Date:  Time:   
 Received by:  Company:  Date:  Time:   
 INST 54 OBS 1.8  
 COR  COR   
 INST  OBS   
 COR  COR

**ANALYSIS REQUEST**  
(Circle or Specify Method No.)

Chloride	
TPH 8015M	
BTEX 8021B	
RUSH	
Hold For BTEX, if TPH <100 ppm Run BTEX	
Turn Around Time if different from standard	
Hold	

LAB USE ONLY

Intact Y/N  
HeadSpace Y/N/NA

REMARKS:

- Dry Weight Basis Required
- TRRP Report Required
- Check if Special Reporting Limits Are Needed

Submittal of samples constitutes agreement to Terms and Conditions

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December 09, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 12/06/13 11:42.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/06/2013	Sampling Date:	12/06/2013
Reported:	12/09/2013	Sampling Type:	Soil
Project Name:	WLSU #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: WELL PAD WSW B (H302954-01)**

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	12/06/2013	ND	2.24	112	2.00	1.34		
Toluene*	<0.050	0.050	12/06/2013	ND	2.27	114	2.00	2.47		
Ethylbenzene*	<0.050	0.050	12/06/2013	ND	2.27	114	2.00	3.35		
Total Xylenes*	<0.150	0.150	12/06/2013	ND	6.80	113	6.00	4.86		
Total BTEX	<0.300	0.300	12/06/2013	ND						

Surrogate: 4-Bromofluorobenzene (PID) 125 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	12/06/2013	ND	192	96.0	200	11.2		
DRO >C10-C28	<10.0	10.0	12/06/2013	ND	190	95.1	200	12.5		
EXT DRO >C28-C35	<10.0	10.0	12/06/2013	ND						

Surrogate: 1-Chlorooctane 91.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 92.7 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



---

Celey D. Keene, Lab Director/Quality Manager





December 23, 2013

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WEST LOVINGTON STRAWN UNIT #11

Enclosed are the results of analyses for samples received by the laboratory on 12/16/13 15:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/16/2013	Sampling Date:	12/16/2013
Reported:	12/23/2013	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: NSWC @ 3' (H303044-01)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>672</b>	16.0	12/21/2013	ND	416	104	400	0.00	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/23/2013	ND	203	102	200	5.84	
DRO >C10-C28	<10.0	10.0	12/23/2013	ND	203	102	200	4.35	
EXT DRO >C28-C35	<10.0	10.0	12/23/2013	ND					

Surrogate: 1-Chlorooctane 88.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 86.5 % 63.6-154

**Sample ID: NSWD @ 3' (H303044-02)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>224</b>	16.0	12/21/2013	ND	400	100	400	3.92	

**Sample ID: NSWD @ 5' (H303044-03)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>112</b>	16.0	12/21/2013	ND	400	100	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/16/2013	Sampling Date:	12/16/2013
Reported:	12/23/2013	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: ESW #3C @ 3' (H303044-04)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>128</b>	16.0	12/21/2013	ND	400	100	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/21/2013	ND	203	102	200	5.84	
DRO >C10-C28	<10.0	10.0	12/21/2013	ND	203	102	200	4.35	
EXT DRO >C28-C35	<10.0	10.0	12/21/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	95.8 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>	93.1 %	63.6-154							

**Sample ID: ESW #3C @ 5' (H303044-05)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>160</b>	16.0	12/21/2013	ND	400	100	400	3.92	

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/16/2013	Sampling Date:	12/16/2013
Reported:	12/23/2013	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: ESW #2D @ 3' (H303044-06)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>640</b>	16.0	12/21/2013	ND	400	100	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/21/2013	ND	203	102	200	5.84	
DRO >C10-C28	<10.0	10.0	12/21/2013	ND	203	102	200	4.35	
EXT DRO >C28-C35	<10.0	10.0	12/21/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>102 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>95.4 %</i>	<i>63.6-154</i>							

**Sample ID: WSW #3C @ 3' (H303044-07)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>640</b>	16.0	12/21/2013	ND	400	100	400	3.92	

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\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/16/2013	Sampling Date:	12/16/2013
Reported:	12/23/2013	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: WSW #2C @ 3' (H303044-08)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>480</b>	16.0	12/21/2013	ND	400	100	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/21/2013	ND	195	97.3	200	1.78	
DRO >C10-C28	<10.0	10.0	12/21/2013	ND	192	95.8	200	5.84	
EXT DRO >C28-C35	<10.0	10.0	12/21/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	98.9 %	65.2-140							
<i>Surrogate: 1-Chlorooctadecane</i>	94.7 %	63.6-154							

**Sample ID: WSW #2D @ 3' (H303044-09)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>144</b>	16.0	12/21/2013	ND	400	100	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 JOEL LOWRY  
 P.O. Box 301  
 Lovington NM, 88260  
 Fax To: (575) 396-1429

Received:	12/16/2013	Sampling Date:	12/16/2013
Reported:	12/23/2013	Sampling Type:	Soil
Project Name:	WEST LOVINGTON STRAWN UNIT #11	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: WSW #1B @ 3' (H303044-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>416</b>	16.0	12/21/2013	ND	400	100	400	3.92	
TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	12/21/2013	ND	195	97.3	200	1.78	
DRO >C10-C28	<10.0	10.0	12/21/2013	ND	192	95.8	200	5.84	
EXT DRO >C28-C35	<10.0	10.0	12/21/2013	ND					
<i>Surrogate: 1-Chlorooctane</i>	<i>100 %</i>	<i>65.2-140</i>							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>95.9 %</i>	<i>63.6-154</i>							

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- \*\* Samples not received at proper temperature of 6°C or below.
- \*\*\* Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C  
Samples reported on an as received basis (wet) unless otherwise noted on report



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Celey D. Keene, Lab Director/Quality Manager





December 22, 2014

JOEL LOWRY

Basin Environmental Service

P.O. Box 301

Lovington, NM 88260

RE: WLSU #11

Enclosed are the results of analyses for samples received by the laboratory on 11/21/14 13:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**Basin Environmental Service  
P.O. Box 301  
Lovington NM, 88260Project: WLSU #11  
Project Number: NONE GIVEN  
Project Manager: JOEL LOWRY  
Fax To: (575) 396-1429Reported:  
22-Dec-14 09:57

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	H403603-01	Water	20-Nov-14 09:20	21-Nov-14 13:20

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Inorganic Compounds**

Alkalinity, Bicarbonate	195		5.00	mg/L	1	4090813	AP	24-Nov-14	310.1	
Alkalinity, Carbonate	ND		0.00	mg/L	1	4090813	AP	24-Nov-14	310.1	
Chloride*	56.0		4.00	mg/L	1	4112510	AP	25-Nov-14	4500-Cl-B	
Conductivity*	667		1.00	uS/cm	1	4112407	AP	24-Nov-14	120.1	
Nitrate as N	1.45		1.00	mg/L	1	4112605	AP	21-Nov-14	353.3	
pH*	7.81		0.100	pH Units	1	4112408	AP	24-Nov-14	150.1	
Sulfate*	95.7		25.0	mg/L	2.5	4112511	AP	26-Nov-14	375.4	
TDS*	384		5.00	mg/L	1	4111806	AP	26-Nov-14	160.1	
Alkalinity, Total*	160		4.00	mg/L	1	4090813	AP	24-Nov-14	310.1	

**VOLATILES BY GC/MS**

Dichlorodifluoromethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Chloromethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Vinyl chloride*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Bromomethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Chloroethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Trichlorofluoromethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,1-Dichloroethene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Carbon disulfide*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Iodomethane	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Acrolein*	ND		0.002	mg/L	1	4112603	MS	26-Nov-14	8260B	
Methylene chloride*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Acetone*	ND		0.005	mg/L	1	4112603	MS	26-Nov-14	8260B	
trans-1,2-Dichloroethene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Methyl t-Butyl Ether*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,1-Dichloroethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Acrylonitrile*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Vinyl acetate*	ND		0.002	mg/L	1	4112603	MS	26-Nov-14	8260B	
cis-1,2-Dichloroethene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**VOLATILES BY GC/MS**

2,2-Dichloropropane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Bromochloromethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Chloroform*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Carbon tetrachloride*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,1,1-Trichloroethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,1-Dichloropropene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
2-Butanone*	ND		0.002	mg/L	1	4112603	MS	26-Nov-14	8260B	
Benzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2-Dichloroethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Trichloroethene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Dibromomethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2-Dichloropropane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Bromodichloromethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
cis-1,3-Dichloropropene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Toluene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
4-Methyl-2-pentanone*	ND		0.002	mg/L	1	4112603	MS	26-Nov-14	8260B	
Tetrachloroethene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
trans-1,3-Dichloropropene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,1,2-Trichloroethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Dibromochloromethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,3-Dichloropropane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2-Dibromoethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
2-Hexanone*	ND		0.002	mg/L	1	4112603	MS	26-Nov-14	8260B	
Chlorobenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Ethylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,1,1,2-Tetrachloroethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
m+p - Xylene*	ND		0.001	mg/L	1	4112603	MS	26-Nov-14	8260B	
o-Xylene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Total Xylenes*	ND		0.002	mg/L	1	4112603	MS	26-Nov-14	8260B	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**VOLATILES BY GC/MS**

Bromoform*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Styrene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Isopropylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Bromobenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
n-Propylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,1,2,2-Tetrachloroethane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
2-Chlorotoluene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2,3-trichloropropane*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,3,5-Trimethylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
trans-1,4-Dichloro-2-butene	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
4-Chlorotoluene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
tert-Butylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2,4-Trimethylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
sec-Butylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
p-Isopropyltoluene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,3-Dichlorobenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,4 Dichlorobenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
n-Butylbenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2-Dichlorobenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2-Dibromo-3-chloropropane *	ND		0.001	mg/L	1	4112603	MS	26-Nov-14	8260B	
Hexachlorobutadiene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2,4-Trichlorobenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
Naphthalene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,2,3-Trichlorobenzene*	ND		0.0005	mg/L	1	4112603	MS	26-Nov-14	8260B	
2-Chloroethylvinyl ether	ND		0.001	mg/L	1	4112603	MS	26-Nov-14	8260B	
1,4-Dioxane	ND		0.050	mg/L	1	4112603	MS	26-Nov-14	8260B	
Surrogate: Dibromofluoromethane			102 %			88.3-113	4112603	MS	26-Nov-14	8260B
Surrogate: Toluene-d8			99.0 %			90.3-115	4112603	MS	26-Nov-14	8260B

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**VOLATILES BY GC/MS**

Surrogate: 4-Bromofluorobenzene	99.8 %	87.2-114	4112603	MS	26-Nov-14	8260B
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**Semivolatile Organic Compounds by GCMS**

Pyridine	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
N-Nitrosodimethylamine	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
2-Picoline	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
Methyl methanesulfonate	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
Ethyl methanesulfonate	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
Pentachloroethane	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
Aniline	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
Phenol	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
2-Chlorophenol	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
bis(2-Chloroethyl)ether	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
1,4-Dichlorobenzene	ND	0.010	mg/L	1	4111308	ms	08-Dec-14	8270C
1,3-Dichlorobenzene	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
Benzyl alcohol	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
1,2-Dichlorobenzene	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
bis(2-Chloroisopropyl)ether	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
Acetophenone	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
2-Methylphenol	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
4-Methylphenol	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
Hexachloroethane	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
N-Nitrosodi-n-propylamine	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
Nitrobenzene	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
N-Nitrosopiperidine	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
Isophorone	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
2-Nitrophenol	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C
2,4-Dimethylphenol	ND	0.005	mg/L	1	4111308	ms	08-Dec-14	8270C
bis(2-Chloroethoxy)methane	ND	0.001	mg/L	1	4111308	ms	08-Dec-14	8270C

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Semivolatile Organic Compounds by GCMS**

2,6-Dichlorophenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
1,2,4-Trichlorobenzene	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Naphthalene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2,4-Dichlorophenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
4-Chloroaniline	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Hexachloropropene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Hexachlorobutadiene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
N-Nitroso-di-n-butylamine	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
4-Chloro-3-methylphenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Safrole	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2-Methylnaphthalene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
1,2,4,5-Tetrachlorobenzene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Hexachlorocyclopentadiene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Caprolactam	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
2,4,6-Trichlorophenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2,4,5-Trichlorophenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Isosafrole	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2-Chloronaphthalene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2-Nitroaniline	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Dimethylphthalate	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Acenaphthylene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2,6-Dinitrotoluene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
3-Nitroaniline	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Acenaphthene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2,4-Dinitrophenol*	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Dibenzofuran	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
4-Nitrophenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Pentachlorobenzene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2,4-Dinitrotoluene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

**Cardinal Laboratories**
**Semivolatile Organic Compounds by GCMS**

2-Naphthylamine	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
1-Naphthylamine	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
2,3,4,6-Tetrachlorophenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Fluorene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Diethylphthalate	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
4-Chlorophenyl-phenyl ether	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
5-Nitro-o-toluidine	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
4-Nitroaniline	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
4,6-Dinitro-2-methylphenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Diphenylamine	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Azobenzene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
1,3,5-Trinitrobenzene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
4-Bromophenyl-phenyl ether	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Phenacetin	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Diallate	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Hexachlorobenzene	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
4-Aminobiphenyl	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Pentachlorophenol	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Pentachloronitrobenzene	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Pronamide	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Phenanthrene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Anthracene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Dinoseb	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Carbazole	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Di-n-butylphthalate	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Isodrin	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Fluoranthene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Benzidine	ND		0.010	mg/L	1	4111308	ms	08-Dec-14	8270C	
Pyrene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Cardinal Laboratories**
**Semivolatile Organic Compounds by GCMS**

Dimethylaminoazobenzene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Chlorobenzilate	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Butylbenzylphthalate	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Benzo[a]anthracene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
3,3'-Dichlorobenzidine	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Chrysene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
bis(2-Ethylhexyl)phthalate	ND		0.010	mg/L	1	4111308	ms	08-Dec-14	8270C	
Di-n-octylphthalate	ND		0.005	mg/L	1	4111308	ms	08-Dec-14	8270C	
Benzo[b]flouranthene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Benzo[k]flouranthene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Benzo[a]pyrene	ND		0.0002	mg/L	1	4111308	ms	08-Dec-14	8270C	
3-Methylcholanthrene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Indeno[1,2,3-cd]pyrene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Dibenz[a,h]anthracene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Benzo[g,h,i]perylene	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
bis(Chloromethyl)ether	ND		0.0002	mg/L	1	4111308	ms	08-Dec-14	8270C	
Quinoline	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
N-Nitrosodiphenylamine	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Nonylphenol	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
1,2-Diphenylhydrazine	ND		0.001	mg/L	1	4111308	ms	08-Dec-14	8270C	
Surrogate: 2-Fluorophenol			42.1 %	21-100		4111308	ms	08-Dec-14	8270C	
Surrogate: Phenol-d5			23.8 %	10-94		4111308	ms	08-Dec-14	8270C	
Surrogate: Nitrobenzene-d5			62.5 %	35-114		4111308	ms	08-Dec-14	8270C	
Surrogate: 2-Fluorobiphenyl			55.8 %	43-116		4111308	ms	08-Dec-14	8270C	
Surrogate: 2,4,6-Tribromophenol			68.7 %	10-123		4111308	ms	08-Dec-14	8270C	
Surrogate: Terphenyl-d14			71.7 %	33-141		4111308	ms	08-Dec-14	8270C	

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Celey D. Keene, Lab Director/Quality Manager

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 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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**Green Analytical Laboratories**
**General Chemistry**

<b>Fluoride*</b>	<b>1.20</b>	0.250	mg/L	1	B412089	ABP	10-Dec-14	4500-F- C
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**Total Recoverable Metals by ICP (E200.7)**

<b>Aluminum*</b>	<b>17.5</b>	0.050	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Arsenic*</b>	ND	0.100	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Barium*</b>	<b>0.132</b>	0.010	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Boron</b>	ND	0.300	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Cadmium*</b>	ND	0.050	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Chromium*</b>	ND	0.050	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Cobalt*</b>	ND	0.050	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Copper*</b>	ND	0.020	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Iron*</b>	<b>8.34</b>	0.060	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Lead*</b>	ND	0.100	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Magnesium*</b>	<b>24.7</b>	0.100	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Manganese*</b>	<b>0.123</b>	0.005	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Molybdenum*</b>	ND	0.050	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Nickel*</b>	ND	0.050	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Potassium*</b>	<b>4.30</b>	1.00	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Selenium*</b>	ND	0.200	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Silver*</b>	ND	0.050	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Sodium*</b>	<b>52.9</b>	0.250	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7
<b>Zinc*</b>	ND	0.200	mg/L	1	B412024	JGS	08-Dec-14	EPA200.7

**Dissolved Metals by ICP**

<b>Calcium*</b>	<b>66.6</b>	0.020	mg/L	1	B412132	JGS	17-Dec-14	EPA200.7
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 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**MW-1**
**H403603-01 (Water)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	-----------------	-------	----------	-------	---------	----------	--------	-------

**Green Analytical Laboratories**
**Total Mercury by CVAA**

Mercury*	ND		0.0002	mg/L	1	B412077	JGS	10-Dec-14	245.1	
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 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4090813 - General Prep - Wet Chem**
**Blank (4090813-BLK1)**

Prepared &amp; Analyzed: 08-Sep-14

Alkalinity, Carbonate	ND	0.00	mg/L							
Alkalinity, Bicarbonate	ND	5.00	mg/L							
Alkalinity, Total	4.00	4.00	mg/L							

**LCS (4090813-BS1)**

Prepared &amp; Analyzed: 08-Sep-14

Alkalinity, Carbonate	ND	0.00	mg/L				80-120			
Alkalinity, Bicarbonate	126	5.00	mg/L				80-120			
Alkalinity, Total	104	4.00	mg/L	100		104	80-120			

**LCS Dup (4090813-BSD1)**

Prepared &amp; Analyzed: 08-Sep-14

Alkalinity, Carbonate	ND	0.00	mg/L				80-120		20	
Alkalinity, Bicarbonate	126	5.00	mg/L				80-120	0.00	20	
Alkalinity, Total	104	4.00	mg/L	100		104	80-120	0.00	20	

**Batch 4111806 - Filtration**
**Blank (4111806-BLK1)**

Prepared: 17-Nov-14 Analyzed: 19-Nov-14

TDS	ND	5.00	mg/L							
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**LCS (4111806-BS1)**

Prepared: 17-Nov-14 Analyzed: 19-Nov-14

TDS	470	5.00	mg/L	527		89.2	80-120			
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**Duplicate (4111806-DUP1)**

Source: H403512-01

Prepared: 17-Nov-14 Analyzed: 19-Nov-14

TDS	2730	5.00	mg/L		2760			1.17	20	
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**Batch 4112407 - General Prep - Wet Chem**
**LCS (4112407-BS1)**

Prepared &amp; Analyzed: 24-Nov-14

Conductivity	514		uS/cm	500		103	80-120			
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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112407 - General Prep - Wet Chem**

<b>Duplicate (4112407-DUP1)</b>		<b>Source: H403565-01</b>			<b>Prepared &amp; Analyzed: 24-Nov-14</b>					
Conductivity	23500	1.00	uS/cm		23700			1.06	20	

**Batch 4112408 - NO PREP**

<b>LCS (4112408-BS1)</b>		<b>Prepared &amp; Analyzed: 24-Nov-14</b>								
pH	7.09		pH Units	7.00		101	90-110			

<b>Duplicate (4112408-DUP1)</b>		<b>Source: H403565-01</b>			<b>Prepared &amp; Analyzed: 24-Nov-14</b>					
pH	6.57	0.100	pH Units		6.55			0.305	20	

**Batch 4112510 - General Prep - Wet Chem**

<b>Blank (4112510-BLK1)</b>		<b>Prepared &amp; Analyzed: 25-Nov-14</b>								
Chloride	ND	4.00	mg/L							

<b>LCS (4112510-BS1)</b>		<b>Prepared &amp; Analyzed: 25-Nov-14</b>								
Chloride	104	4.00	mg/L	100		104	80-120			

<b>LCS Dup (4112510-BSD1)</b>		<b>Prepared &amp; Analyzed: 25-Nov-14</b>								
Chloride	104	4.00	mg/L	100		104	80-120	0.00	20	

**Batch 4112511 - General Prep - Wet Chem**

<b>Blank (4112511-BLK1)</b>		<b>Prepared: 25-Nov-14 Analyzed: 26-Nov-14</b>								
Sulfate	ND	10.0	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Inorganic Compounds - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112511 - General Prep - Wet Chem**
**LCS (4112511-BS1)**

Prepared: 25-Nov-14 Analyzed: 26-Nov-14

Sulfate	17.9	10.0	mg/L	20.0		89.4	80-120			
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**LCS Dup (4112511-BSD1)**

Prepared: 25-Nov-14 Analyzed: 26-Nov-14

Sulfate	18.4	10.0	mg/L	20.0		92.0	80-120	2.87	20	
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**Batch 4112605 - General Prep - Wet Chem**
**Blank (4112605-BLK1)**

Prepared &amp; Analyzed: 21-Nov-14

Nitrate as N	ND	1.00	mg/L							
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**LCS (4112605-BS1)**

Prepared &amp; Analyzed: 21-Nov-14

Nitrate as N	4.60	1.00	mg/L	5.00		92.0	80-120			
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**Duplicate (4112605-DUP1)**

Source: H403603-01

Prepared &amp; Analyzed: 21-Nov-14

Nitrate as N	1.64	1.00	mg/L		1.45			12.3	20	
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 Project: WLSU #11  
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 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112603 - Volatiles**
**Blank (4112603-BLK1)**

Prepared &amp; Analyzed: 26-Nov-14

Dichlorodifluoromethane	ND	0.0005	mg/L							
Chloromethane	ND	0.0005	mg/L							
Vinyl chloride	ND	0.0005	mg/L							
Bromomethane	ND	0.0005	mg/L							
Chloroethane	ND	0.0005	mg/L							
Trichlorofluoromethane	ND	0.0005	mg/L							
Carbon disulfide	ND	0.0005	mg/L							
1,1-Dichloroethene	ND	0.0005	mg/L							
Iodomethane	ND	0.0005	mg/L							
Acrolein	ND	0.002	mg/L							
Methylene chloride	ND	0.0005	mg/L							
Acetone	ND	0.002	mg/L							
trans-1,2-Dichloroethene	ND	0.0005	mg/L							
Methyl t-Butyl Ether	ND	0.0005	mg/L							
1,1-Dichloroethane	ND	0.0005	mg/L							
Acrylonitrile	ND	0.0005	mg/L							
Vinyl acetate	ND	0.002	mg/L							
cis-1,2-Dichloroethene	ND	0.0005	mg/L							
2,2-Dichloropropane	ND	0.0005	mg/L							
Bromochloromethane	ND	0.0005	mg/L							
Chloroform	ND	0.0005	mg/L							
Carbon tetrachloride	ND	0.0005	mg/L							
1,1,1-Trichloroethane	ND	0.0005	mg/L							
1,1-Dichloropropene	ND	0.0005	mg/L							
2-Butanone	ND	0.002	mg/L							
Benzene	ND	0.0005	mg/L							
1,2-Dichloroethane	ND	0.0005	mg/L							
Trichloroethene	ND	0.0005	mg/L							
Dibromomethane	ND	0.0005	mg/L							
1,2-Dichloropropane	ND	0.0005	mg/L							
Bromodichloromethane	ND	0.0005	mg/L							
cis-1,3-Dichloropropene	ND	0.0005	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112603 - Volatiles**
**Blank (4112603-BLK1)**

Prepared &amp; Analyzed: 26-Nov-14

Toluene	ND	0.0005	mg/L							
4-Methyl-2-pentanone	ND	0.002	mg/L							
Tetrachloroethene	ND	0.0005	mg/L							
trans-1,3-Dichloropropene	ND	0.0005	mg/L							
1,1,2-Trichloroethane	ND	0.0005	mg/L							
Dibromochloromethane	ND	0.0005	mg/L							
1,3-Dichloropropane	ND	0.0005	mg/L							
1,2-Dibromoethane	ND	0.0005	mg/L							
2-Hexanone	ND	0.002	mg/L							
Chlorobenzene	ND	0.0005	mg/L							
Ethylbenzene	ND	0.0005	mg/L							
1,1,1,2-Tetrachloroethane	ND	0.0005	mg/L							
m+p - Xylene	ND	0.001	mg/L							
Total Xylenes	ND	0.002	mg/L							
o-Xylene	ND	0.0005	mg/L							
Bromoform	ND	0.0005	mg/L							
Styrene	ND	0.0005	mg/L							
Isopropylbenzene	ND	0.0005	mg/L							
Bromobenzene	ND	0.0005	mg/L							
n-Propylbenzene	ND	0.0005	mg/L							
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L							
2-Chlorotoluene	ND	0.0005	mg/L							
1,2,3-trichloropropane	ND	0.0005	mg/L							
1,3,5-Trimethylbenzene	ND	0.0005	mg/L							
trans-1,4-Dichloro-2-butene	ND	0.0005	mg/L							
4-Chlorotoluene	ND	0.0005	mg/L							
tert-Butylbenzene	ND	0.0005	mg/L							
1,2,4-Trimethylbenzene	ND	0.0005	mg/L							
sec-Butylbenzene	ND	0.0005	mg/L							
p-Isopropyltoluene	ND	0.0005	mg/L							
1,3-Dichlorobenzene	ND	0.0005	mg/L							
1,4 Dichlorobenzene	ND	0.0005	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

**Batch 4112603 - Volatiles**
**Blank (4112603-BLK1)**

Prepared &amp; Analyzed: 26-Nov-14

n-Butylbenzene	ND	0.0005	mg/L							
1,2-Dichlorobenzene	ND	0.0005	mg/L							
1,2-Dibromo-3-chloropropane	ND	0.001	mg/L							
Hexachlorobutadiene	ND	0.0005	mg/L							
1,2,4-Trichlorobenzene	ND	0.0005	mg/L							
Naphthalene	ND	0.0005	mg/L							
1,2,3-Trichlorobenzene	ND	0.0005	mg/L							
2-Chloroethylvinyl ether	ND	0.001	mg/L							
1,4-Dioxane	ND	0.050	mg/L							
<i>Surrogate: Dibromofluoromethane</i>	<i>0.00999</i>		mg/L	<i>0.0100</i>		<i>99.9</i>	<i>88.3-113</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0101</i>		mg/L	<i>0.0100</i>		<i>101</i>	<i>90.3-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.00976</i>		mg/L	<i>0.0100</i>		<i>97.6</i>	<i>87.2-114</i>			

**LCS (4112603-BS1)**

Prepared &amp; Analyzed: 26-Nov-14

Dichlorodifluoromethane	0.018	0.0005	mg/L	0.0200		91.0	29.7-161			
Chloromethane	0.017	0.0005	mg/L	0.0200		87.2	42.6-145			
Vinyl chloride	0.020	0.0005	mg/L	0.0200		97.5	63.7-137			
Bromomethane	0.014	0.0005	mg/L	0.0200		72.4	63.7-124			
Chloroethane	0.016	0.0005	mg/L	0.0200		81.6	69.5-124			
Trichlorofluoromethane	0.019	0.0005	mg/L	0.0200		94.2	63.9-139			
1,1-Dichloroethene	0.022	0.0005	mg/L	0.0200		110	53.4-144			
Carbon disulfide	0.020	0.0005	mg/L	0.0200		102	71.4-133			
Iodomethane	0.021	0.0005	mg/L	0.0200		104	70.8-128			
Acrolein	0.099	0.002	mg/L	0.100		99.0	4.36-168			
Methylene chloride	0.019	0.0005	mg/L	0.0200		94.0	59.7-118			
Acetone	0.021	0.002	mg/L	0.0200		107	51-166			
trans-1,2-Dichloroethene	0.020	0.0005	mg/L	0.0200		102	70.6-128			
Methyl t-Butyl Ether	0.021	0.0005	mg/L	0.0200		106	82.3-115			
1,1-Dichloroethane	0.021	0.0005	mg/L	0.0200		105	73.3-129			
Acrylonitrile	0.021	0.0005	mg/L	0.0200		103	65.7-138			
Vinyl acetate	0.020	0.002	mg/L	0.0200		99.8	42.8-150			
cis-1,2-Dichloroethene	0.022	0.0005	mg/L	0.0200		111	79.6-121			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112603 - Volatiles**
**LCS (4112603-BS1)**

Prepared &amp; Analyzed: 26-Nov-14

2,2-Dichloropropane	0.020	0.0005	mg/L	0.0200		102	77.4-117			
Bromochloromethane	0.022	0.0005	mg/L	0.0200		108	75.8-121			
Chloroform	0.021	0.0005	mg/L	0.0200		106	74.6-122			
Carbon tetrachloride	0.023	0.0005	mg/L	0.0200		113	73.8-132			
1,1,1-Trichloroethane	0.022	0.0005	mg/L	0.0200		111	71.7-133			
1,1-Dichloropropene	0.021	0.0005	mg/L	0.0200		106	78.3-129			
2-Butanone	0.022	0.002	mg/L	0.0200		109	74.4-131			
Benzene	0.021	0.0005	mg/L	0.0200		106	73.1-134			
1,2-Dichloroethane	0.021	0.0005	mg/L	0.0200		104	67.2-136			
Trichloroethene	0.021	0.0005	mg/L	0.0200		105	79-127			
Dibromomethane	0.021	0.0005	mg/L	0.0200		107	79.3-119			
1,2-Dichloropropane	0.022	0.0005	mg/L	0.0200		109	73.4-134			
Bromodichloromethane	0.022	0.0005	mg/L	0.0200		111	81.1-124			
cis-1,3-Dichloropropene	0.021	0.0005	mg/L	0.0200		103	87.5-123			
Toluene	0.021	0.0005	mg/L	0.0200		107	75.2-126			
4-Methyl-2-pentanone	0.019	0.002	mg/L	0.0200		95.9	62.7-138			
Tetrachloroethene	0.021	0.0005	mg/L	0.0200		104	66.5-143			
trans-1,3-Dichloropropene	0.022	0.0005	mg/L	0.0200		108	85.9-124			
1,1,2-Trichloroethane	0.021	0.0005	mg/L	0.0200		106	89.4-118			
Dibromochloromethane	0.022	0.0005	mg/L	0.0200		110	94.7-117			
1,3-Dichloropropane	0.021	0.0005	mg/L	0.0200		105	86-123			
1,2-Dibromoethane	0.021	0.0005	mg/L	0.0200		107	89.7-119			
2-Hexanone	0.021	0.002	mg/L	0.0200		105	63.2-137			
Chlorobenzene	0.021	0.0005	mg/L	0.0200		106	89.9-115			
Ethylbenzene	0.021	0.0005	mg/L	0.0200		106	74.3-120			
1,1,1,2-Tetrachloroethane	0.022	0.0005	mg/L	0.0200		111	90.9-117			
m+p - Xylene	0.043	0.001	mg/L	0.0400		108	81.2-123			
Total Xylenes	0.065	0.002	mg/L	0.0600		108	81.8-121			
o-Xylene	0.021	0.0005	mg/L	0.0200		106	82.2-119			
Bromoform	0.020	0.0005	mg/L	0.0200		98.6	73.6-140			
Styrene	0.021	0.0005	mg/L	0.0200		106	82.2-126			
Isopropylbenzene	0.023	0.0005	mg/L	0.0200		115	85.6-126			

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 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112603 - Volatiles**
**LCS (4112603-BS1)**

Prepared &amp; Analyzed: 26-Nov-14

Bromobenzene	0.022	0.0005	mg/L	0.0200		108	86.7-116			
n-Propylbenzene	0.022	0.0005	mg/L	0.0200		110	76.2-131			
1,1,2,2-Tetrachloroethane	0.021	0.0005	mg/L	0.0200		105	85.2-120			
2-Chlorotoluene	0.021	0.0005	mg/L	0.0200		107	81.7-124			
1,2,3-trichloropropane	0.021	0.0005	mg/L	0.0200		104	85.9-121			
1,3,5-Trimethylbenzene	0.022	0.0005	mg/L	0.0200		112	80.4-127			
trans-1,4-Dichloro-2-butene	0.018	0.0005	mg/L	0.0200		88.9	71.5-140			
4-Chlorotoluene	0.021	0.0005	mg/L	0.0200		105	81.6-123			
tert-Butylbenzene	0.020	0.0005	mg/L	0.0200		101	78.4-127			
1,2,4-Trimethylbenzene	0.023	0.0005	mg/L	0.0200		113	82.9-124			
sec-Butylbenzene	0.023	0.0005	mg/L	0.0200		115	72.6-140			
p-Isopropyltoluene	0.023	0.0005	mg/L	0.0200		113	74.4-133			
1,3-Dichlorobenzene	0.021	0.0005	mg/L	0.0200		104	82.7-121			
1,4 Dichlorobenzene	0.020	0.0005	mg/L	0.0200		99.6	65.3-138			
n-Butylbenzene	0.021	0.0005	mg/L	0.0200		107	65.5-143			
1,2-Dichlorobenzene	0.021	0.0005	mg/L	0.0200		107	84-119			
1,2-Dibromo-3-chloropropane	0.021	0.001	mg/L	0.0200		107	55.9-133			
Hexachlorobutadiene	0.022	0.0005	mg/L	0.0200		111	68-138			
1,2,4-Trichlorobenzene	0.021	0.0005	mg/L	0.0200		105	72.3-125			
Naphthalene	0.022	0.0005	mg/L	0.0200		112	57.2-136			
1,2,3-Trichlorobenzene	0.022	0.0005	mg/L	0.0200		108	57.5-133			
2-Chloroethylvinyl ether	ND	0.001	mg/L				60-140			
1,4-Dioxane	ND	0.050	mg/L				60-140			
Surrogate: Dibromofluoromethane	0.0101		mg/L	0.0100		101	88.3-113			
Surrogate: Toluene-d8	0.0103		mg/L	0.0100		103	90.3-115			
Surrogate: 4-Bromofluorobenzene	0.0101		mg/L	0.0100		101	87.2-114			

**LCS Dup (4112603-BSD1)**

Prepared &amp; Analyzed: 26-Nov-14

Dichlorodifluoromethane	0.021	0.0005	mg/L	0.0200		103	29.7-161	12.6	17	
Chloromethane	0.021	0.0005	mg/L	0.0200		103	42.6-145	16.2	16	QR-02
Vinyl chloride	0.021	0.0005	mg/L	0.0200		104	63.7-137	6.55	14.8	
Bromomethane	0.019	0.0005	mg/L	0.0200		97.4	63.7-124	29.5	10.9	QR-02

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112603 - Volatiles**
**LCS Dup (4112603-BSD1)**

Prepared &amp; Analyzed: 26-Nov-14

Chloroethane	0.020	0.0005	mg/L	0.0200		102	69.5-124	22.6	11.8	QR-02
Trichlorofluoromethane	0.022	0.0005	mg/L	0.0200		108	63.9-139	13.6	11.4	QR-02
Carbon disulfide	0.020	0.0005	mg/L	0.0200		102	71.4-133	0.539	11.6	
1,1-Dichloroethene	0.021	0.0005	mg/L	0.0200		107	53.4-144	2.26	15.2	
Iodomethane	0.021	0.0005	mg/L	0.0200		104	70.8-128	0.0483	13.5	
Acrolein	0.099	0.002	mg/L	0.100		98.6	4.36-168	0.435	36.8	
Methylene chloride	0.019	0.0005	mg/L	0.0200		92.6	59.7-118	1.45	14	
Acetone	0.020	0.002	mg/L	0.0200		99.0	51-166	7.39	37	
trans-1,2-Dichloroethene	0.020	0.0005	mg/L	0.0200		102	70.6-128	0.489	10.4	
Methyl t-Butyl Ether	0.021	0.0005	mg/L	0.0200		103	82.3-115	3.44	8.63	
1,1-Dichloroethane	0.021	0.0005	mg/L	0.0200		104	73.3-129	0.911	10.2	
Acrylonitrile	0.020	0.0005	mg/L	0.0200		99.8	65.7-138	2.91	6.8	
Vinyl acetate	0.020	0.002	mg/L	0.0200		99.2	42.8-150	0.603	9.67	
cis-1,2-Dichloroethene	0.021	0.0005	mg/L	0.0200		107	79.6-121	3.67	10.9	
2,2-Dichloropropane	0.020	0.0005	mg/L	0.0200		99.8	77.4-117	2.47	10.5	
Bromochloromethane	0.021	0.0005	mg/L	0.0200		106	75.8-121	1.78	12.5	
Chloroform	0.021	0.0005	mg/L	0.0200		104	74.6-122	2.05	10.5	
Carbon tetrachloride	0.022	0.0005	mg/L	0.0200		109	73.8-132	3.70	11.1	
1,1,1-Trichloroethane	0.022	0.0005	mg/L	0.0200		109	71.7-133	2.18	10.6	
1,1-Dichloropropene	0.021	0.0005	mg/L	0.0200		105	78.3-129	0.427	11.1	
2-Butanone	0.021	0.002	mg/L	0.0200		103	74.4-131	5.99	10.5	
Benzene	0.021	0.0005	mg/L	0.0200		105	73.1-134	0.665	8.2	
1,2-Dichloroethane	0.021	0.0005	mg/L	0.0200		104	67.2-136	0.385	9.4	
Trichloroethene	0.021	0.0005	mg/L	0.0200		104	79-127	0.527	11.6	
Dibromomethane	0.021	0.0005	mg/L	0.0200		103	79.3-119	3.34	9.03	
1,2-Dichloropropane	0.022	0.0005	mg/L	0.0200		108	73.4-134	0.508	10.9	
Bromodichloromethane	0.021	0.0005	mg/L	0.0200		107	81.1-124	3.81	10.2	
cis-1,3-Dichloropropene	0.020	0.0005	mg/L	0.0200		100	87.5-123	3.25	10.3	
Toluene	0.021	0.0005	mg/L	0.0200		103	75.2-126	4.43	7.23	
4-Methyl-2-pentanone	0.018	0.002	mg/L	0.0200		91.6	62.7-138	4.64	9.27	
Tetrachloroethene	0.020	0.0005	mg/L	0.0200		102	66.5-143	2.33	12.7	
trans-1,3-Dichloropropene	0.021	0.0005	mg/L	0.0200		105	85.9-124	2.72	10.3	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112603 - Volatiles**
**LCS Dup (4112603-BSD1)**

Prepared &amp; Analyzed: 26-Nov-14

1,1,2-Trichloroethane	0.021	0.0005	mg/L	0.0200		105	89.4-118	1.28	8.98	
Dibromochloromethane	0.022	0.0005	mg/L	0.0200		108	94.7-117	2.06	11	
1,3-Dichloropropane	0.021	0.0005	mg/L	0.0200		103	86-123	2.06	8.14	
1,2-Dibromoethane	0.021	0.0005	mg/L	0.0200		103	89.7-119	3.14	7.18	
2-Hexanone	0.021	0.002	mg/L	0.0200		107	63.2-137	1.37	8.96	
Chlorobenzene	0.021	0.0005	mg/L	0.0200		103	89.9-115	2.73	11.7	
Ethylbenzene	0.021	0.0005	mg/L	0.0200		103	74.3-120	2.97	6.61	
1,1,1,2-Tetrachloroethane	0.021	0.0005	mg/L	0.0200		106	90.9-117	4.53	8.77	
m+p - Xylene	0.042	0.001	mg/L	0.0400		105	81.2-123	3.35	6.49	
Total Xylenes	0.063	0.002	mg/L	0.0600		105	81.8-121	2.41	6.89	
o-Xylene	0.021	0.0005	mg/L	0.0200		106	82.2-119	0.518	7.67	
Bromoform	0.019	0.0005	mg/L	0.0200		97.2	73.6-140	1.43	9.78	
Styrene	0.021	0.0005	mg/L	0.0200		105	82.2-126	0.807	10.6	
Isopropylbenzene	0.022	0.0005	mg/L	0.0200		110	85.6-126	3.78	11.8	
Bromobenzene	0.021	0.0005	mg/L	0.0200		105	86.7-116	2.76	15.4	
n-Propylbenzene	0.021	0.0005	mg/L	0.0200		106	76.2-131	4.03	14.4	
1,1,1,2-Tetrachloroethane	0.020	0.0005	mg/L	0.0200		102	85.2-120	2.17	9.71	
2-Chlorotoluene	0.021	0.0005	mg/L	0.0200		104	81.7-124	2.84	14.2	
1,2,3-trichloropropane	0.020	0.0005	mg/L	0.0200		102	85.9-121	2.03	12.3	
1,3,5-Trimethylbenzene	0.021	0.0005	mg/L	0.0200		107	80.4-127	4.52	14.9	
trans-1,4-Dichloro-2-butene	0.018	0.0005	mg/L	0.0200		88.6	71.5-140	0.338	17.4	
4-Chlorotoluene	0.020	0.0005	mg/L	0.0200		102	81.6-123	3.19	14.1	
tert-Butylbenzene	0.019	0.0005	mg/L	0.0200		96.4	78.4-127	5.05	13.6	
1,2,4-Trimethylbenzene	0.022	0.0005	mg/L	0.0200		109	82.9-124	3.24	15.4	
sec-Butylbenzene	0.021	0.0005	mg/L	0.0200		107	72.6-140	7.41	15.3	
p-Isopropyltoluene	0.022	0.0005	mg/L	0.0200		109	74.4-133	3.79	13.2	
1,3-Dichlorobenzene	0.021	0.0005	mg/L	0.0200		104	82.7-121	0.914	12.8	
1,4 Dichlorobenzene	0.020	0.0005	mg/L	0.0200		98.3	65.3-138	1.26	13.8	
n-Butylbenzene	0.020	0.0005	mg/L	0.0200		102	65.5-143	4.83	15.7	
1,2-Dichlorobenzene	0.021	0.0005	mg/L	0.0200		104	84-119	2.65	13.2	
1,2-Dibromo-3-chloropropane	0.020	0.001	mg/L	0.0200		102	55.9-133	4.17	15.1	
Hexachlorobutadiene	0.021	0.0005	mg/L	0.0200		104	68-138	6.29	20.6	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**VOLATILES BY GC/MS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4112603 - Volatiles**
**LCS Dup (4112603-BSD1)**

Prepared &amp; Analyzed: 26-Nov-14

1,2,4-Trichlorobenzene	0.021	0.0005	mg/L	0.0200		103	72.3-125	2.21	15.3	
Naphthalene	0.022	0.0005	mg/L	0.0200		110	57.2-136	1.17	12.4	
1,2,3-Trichlorobenzene	0.020	0.0005	mg/L	0.0200		102	57.5-133	5.32	13.9	
2-Chloroethylvinyl ether	ND	0.001	mg/L				60-140		20	
1,4-Dioxane	ND	0.050	mg/L				60-140		20	
<i>Surrogate: Dibromofluoromethane</i>	<i>0.0100</i>		mg/L	<i>0.0100</i>		<i>100</i>	<i>88.3-113</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.00999</i>		mg/L	<i>0.0100</i>		<i>99.9</i>	<i>90.3-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0100</i>		mg/L	<i>0.0100</i>		<i>100</i>	<i>87.2-114</i>			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**Blank (4111308-BLK1)**

Prepared &amp; Analyzed: 13-Nov-14

Pyridine	ND	0.005	mg/L							
N-Nitrosodimethylamine	ND	0.005	mg/L							
2-Picoline	ND	0.005	mg/L							
Methyl methanesulfonate	ND	0.005	mg/L							
Ethyl methanesulfonate	ND	0.005	mg/L							
Pentachloroethane	ND	0.005	mg/L							
Aniline	ND	0.005	mg/L							
Phenol	ND	0.005	mg/L							
2-Chlorophenol	ND	0.005	mg/L							
bis(2-Chloroethyl)ether	ND	0.005	mg/L							
1,4-Dichlorobenzene	0.032	0.005	mg/L							B
1,3-Dichlorobenzene	ND	0.001	mg/L							
Benzyl alcohol	ND	0.001	mg/L							
1,2-Dichlorobenzene	ND	0.001	mg/L							
bis(2-Chloroisopropyl)ether	ND	0.001	mg/L							
Acetophenone	ND	0.001	mg/L							
2-Methylphenol	ND	0.001	mg/L							
4-Methylphenol	ND	0.001	mg/L							
Hexachloroethane	ND	0.001	mg/L							
N-Nitrosodi-n-propylamine	ND	0.001	mg/L							
Nitrobenzene	ND	0.001	mg/L							
N-Nitrosopiperidine	ND	0.001	mg/L							
Isophorone	ND	0.001	mg/L							
2-Nitrophenol	ND	0.001	mg/L							
2,4-Dimethylphenol	ND	0.005	mg/L							
bis(2-Chloroethoxy)methane	ND	0.001	mg/L							
2,6-Dichlorophenol	ND	0.001	mg/L							
1,2,4-Trichlorobenzene	ND	0.005	mg/L							
Naphthalene	ND	0.001	mg/L							
2,4-Dichlorophenol	ND	0.001	mg/L							
4-Chloroaniline	ND	0.001	mg/L							
Hexachloropropene	ND	0.001	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**Blank (4111308-BLK1)**

Prepared &amp; Analyzed: 13-Nov-14

Hexachlorobutadiene	ND	0.001	mg/L							
N-Nitroso-di-n-butylamine	ND	0.005	mg/L							
4-Chloro-3-methylphenol	ND	0.001	mg/L							
Safrole	ND	0.001	mg/L							
2-Methylnaphthalene	ND	0.001	mg/L							
1,2,4,5-Tetrachlorobenzene	ND	0.001	mg/L							
Caprolactam	ND	0.005	mg/L							
Hexachlorocyclopentadiene	ND	0.001	mg/L							
2,4,6-Trichlorophenol	ND	0.001	mg/L							
2,4,5-Trichlorophenol	ND	0.001	mg/L							
Isosafrole	ND	0.001	mg/L							
2-Chloronaphthalene	ND	0.001	mg/L							
2-Nitroaniline	ND	0.001	mg/L							
Dimethylphthalate	0.003	0.001	mg/L							B
Acenaphthylene	ND	0.001	mg/L							
2,6-Dinitrotoluene	ND	0.001	mg/L							
3-Nitroaniline	ND	0.001	mg/L							
Acenaphthene	ND	0.001	mg/L							
2,4-Dinitrophenol*	ND	0.001	mg/L							
Dibenzofuran	ND	0.001	mg/L							
4-Nitrophenol	ND	0.001	mg/L							
Pentachlorobenzene	ND	0.001	mg/L							
2,4-Dinitrotoluene	ND	0.001	mg/L							
2-Naphthylamine	ND	0.001	mg/L							
1-Naphthylamine	ND	0.001	mg/L							
2,3,4,6-Tetrachlorophenol	ND	0.001	mg/L							
Fluorene	ND	0.001	mg/L							
Diethylphthalate	ND	0.001	mg/L							
4-Chlorophenyl-phenyl ether	ND	0.001	mg/L							
5-Nitro-o-toluidine	ND	0.001	mg/L							
4-Nitroaniline	ND	0.005	mg/L							
4,6-Dinitro-2-methylphenol	ND	0.001	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**Blank (4111308-BLK1)**

Prepared &amp; Analyzed: 13-Nov-14

Diphenylamine	ND	0.001	mg/L							
Azobenzene	ND	0.001	mg/L							
1,3,5-Trinitrobenzene	ND	0.001	mg/L							
4-Bromophenyl-phenyl ether	ND	0.005	mg/L							
Phenacetin	ND	0.001	mg/L							
Diallate	ND	0.005	mg/L							
Hexachlorobenzene	ND	0.005	mg/L							
4-Aminobiphenyl	ND	0.001	mg/L							
Pentachlorophenol	ND	0.005	mg/L							
Pentachloronitrobenzene	ND	0.005	mg/L							
Pronamide	ND	0.001	mg/L							
Phenanthrene	0.001	0.001	mg/L							
Anthracene	ND	0.001	mg/L							
Dinoseb	ND	0.005	mg/L							
Carbazole	ND	0.001	mg/L							
Di-n-butylphthalate	0.004	0.001	mg/L							B
Isodrin	ND	0.001	mg/L							
Fluoranthene	ND	0.001	mg/L							
Benzidine	ND	0.010	mg/L							
Pyrene	ND	0.001	mg/L							
Dimethylaminoazobenzene	ND	0.001	mg/L							
Chlorobenzilate	ND	0.001	mg/L							
Butylbenzylphthalate	0.003	0.001	mg/L							B
Benzo[a]anthracene	ND	0.001	mg/L							
3,3'-Dichlorobenzidine	ND	0.005	mg/L							
Chrysene	ND	0.001	mg/L							
bis(2-Ethylhexyl)phthalate	0.006	0.001	mg/L							B
Di-n-octylphthalate	ND	0.005	mg/L							
Benzo[b]flouranthene	ND	0.001	mg/L							
Benzo[k]flouranthene	ND	0.001	mg/L							
Benzo[a]pyrene	ND	0.0002	mg/L							
3-Methylcholanthrene	ND	0.001	mg/L							

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**Blank (4111308-BLK1)**

Prepared &amp; Analyzed: 13-Nov-14

Indeno[1,2,3-cd]pyrene	ND	0.001	mg/L							
Dibenz[a,h]anthracene	ND	0.001	mg/L							
Benzo[g,h,i]perylene	ND	0.001	mg/L							
bis(Chloromethyl)ether	ND	0.0002	mg/L							
Quinoline	ND	0.001	mg/L							
N-Nitrosodiphenylamine	ND	0.001	mg/L							
Nonylphenol	ND	0.001	mg/L							
1,2-Diphenylhydrazine	ND	0.001	mg/L							
<i>Surrogate: 2-Fluorophenol</i>	<i>0.0253</i>		mg/L	<i>0.0500</i>		<i>50.6</i>	<i>21-100</i>			
<i>Surrogate: Phenol-d5</i>	<i>0.0142</i>		mg/L	<i>0.0500</i>		<i>28.4</i>	<i>10-94</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>0.0430</i>		mg/L	<i>0.0500</i>		<i>86.1</i>	<i>35-114</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>0.0345</i>		mg/L	<i>0.0500</i>		<i>69.1</i>	<i>43-116</i>			
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>0.0419</i>		mg/L	<i>0.0500</i>		<i>83.8</i>	<i>10-123</i>			
<i>Surrogate: Terphenyl-dl4</i>	<i>0.0461</i>		mg/L	<i>0.0500</i>		<i>92.2</i>	<i>33-141</i>			

**LCS (4111308-BS1)**

Prepared &amp; Analyzed: 13-Nov-14

Pyridine	0.005	0.005	mg/L	0.0100		45.5	30-170			
N-Nitrosodimethylamine	0.005	0.005	mg/L	0.0100		53.3	30-170			
2-Picoline	0.005	0.005	mg/L	0.0100		49.5	30-170			
Methyl methanesulfonate	0.006	0.005	mg/L	0.0100		64.0	30-170			
Ethyl methanesulfonate	0.008	0.005	mg/L	0.0100		76.1	30-170			
Pentachloroethane	0.006	0.005	mg/L	0.0100		55.0	30-170			
Aniline	0.008	0.005	mg/L	0.0100		77.3	30-170			
Phenol	0.004	0.005	mg/L	0.0100		36.4	30-170			
2-Chlorophenol	0.008	0.005	mg/L	0.0100		77.1	30-170			
bis(2-Chloroethyl)ether	0.006	0.005	mg/L	0.0100		64.4	30-170			
1,4-Dichlorobenzene	0.042	0.005	mg/L	0.0100		417	30-170			BS1
1,3-Dichlorobenzene	0.005	0.001	mg/L	0.0100		51.9	30-170			
Benzyl alcohol	0.007	0.001	mg/L	0.0100		73.5	30-170			
1,2-Dichlorobenzene	0.006	0.001	mg/L	0.0100		57.8	30-170			
bis(2-Chloroisopropyl)ether	0.006	0.001	mg/L	0.0100		61.4	30-170			
Acetophenone	0.007	0.001	mg/L	0.0100		73.3	30-170			

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Caley D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**LCS (4111308-BS1)**

Prepared &amp; Analyzed: 13-Nov-14

2-Methylphenol	0.007	0.001	mg/L	0.0100		71.0	30-170			
4-Methylphenol	0.012	0.001	mg/L	0.0200		59.7	30-170			
Hexachloroethane	0.003	0.001	mg/L	0.0100		33.4	30-170			
N-Nitrosodi-n-propylamine	0.007	0.001	mg/L	0.0100		68.4	30-170			
Nitrobenzene	0.008	0.001	mg/L	0.0100		77.6	30-170			
N-Nitrosopiperidine	0.007	0.001	mg/L	0.0100		70.8	30-170			
Isophorone	0.008	0.001	mg/L	0.0100		78.6	30-170			
2-Nitrophenol	0.008	0.001	mg/L	0.0100		77.6	30-170			
2,4-Dimethylphenol	0.008	0.005	mg/L	0.0100		78.2	30-170			
bis(2-Chloroethoxy)methane	0.008	0.001	mg/L	0.0100		80.3	30-170			
2,6-Dichlorophenol	0.008	0.001	mg/L	0.0100		80.6	30-170			
1,2,4-Trichlorobenzene	0.006	0.005	mg/L	0.0100		58.9	30-170			
Naphthalene	0.006	0.001	mg/L	0.0100		65.0	30-170			
2,4-Dichlorophenol	0.008	0.001	mg/L	0.0100		83.7	30-170			
4-Chloroaniline	0.009	0.001	mg/L	0.0100		87.5	30-170			
Hexachloropropene	0.004	0.001	mg/L	0.0100		41.5	30-170			
Hexachlorobutadiene	0.004	0.001	mg/L	0.0100		37.8	30-170			
N-Nitroso-di-n-butylamine	0.006	0.005	mg/L	0.0100		57.2	30-170			
4-Chloro-3-methylphenol	0.008	0.001	mg/L	0.0100		78.2	30-170			
Safrole	0.008	0.001	mg/L	0.0100		78.5	30-170			
2-Methylnaphthalene	0.008	0.001	mg/L	0.0100		80.5	30-170			
1,2,4,5-Tetrachlorobenzene	0.006	0.001	mg/L	0.0100		64.1	30-170			
Caprolactam	ND	0.005	mg/L				30-170			
Hexachlorocyclopentadiene	0.004	0.001	mg/L	0.0100		42.9	30-170			
2,4,6-Trichlorophenol	0.009	0.001	mg/L	0.0100		93.4	30-170			
2,4,5-Trichlorophenol	0.009	0.001	mg/L	0.0100		92.0	30-170			
Isosafrole	0.008	0.001	mg/L	0.0100		75.1	30-170			
2-Chloronaphthalene	0.007	0.001	mg/L	0.0100		72.2	30-170			
2-Nitroaniline	0.008	0.001	mg/L	0.0100		83.3	30-170			
Dimethylphthalate	0.011	0.001	mg/L	0.0100		112	30-170			
Acenaphthylene	0.008	0.001	mg/L	0.0100		83.6	30-170			
2,6-Dinitrotoluene	0.009	0.001	mg/L	0.0100		86.2	30-170			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**LCS (4111308-BS1)**

Prepared &amp; Analyzed: 13-Nov-14

3-Nitroaniline	0.009	0.001	mg/L	0.0100		89.8	30-170			
Acenaphthene	0.008	0.001	mg/L	0.0100		78.2	30-170			
2,4-Dinitrophenol*	0.010	0.001	mg/L	0.0100		95.9	30-170			
Dibenzofuran	0.009	0.001	mg/L	0.0100		86.4	30-170			
4-Nitrophenol	0.005	0.001	mg/L	0.0100		47.5	30-170			
Pentachlorobenzene	0.007	0.001	mg/L	0.0100		73.0	30-170			
2,4-Dinitrotoluene	0.009	0.001	mg/L	0.0100		87.7	30-170			
2-Naphthylamine	0.006	0.001	mg/L	0.0100		62.3	30-170			
1-Naphthylamine	0.006	0.001	mg/L	0.0100		62.8	30-170			
2,3,4,6-Tetrachlorophenol	0.008	0.001	mg/L	0.0100		84.2	30-170			
Fluorene	0.009	0.001	mg/L	0.0100		85.5	30-170			
Diethylphthalate	0.009	0.001	mg/L	0.0100		89.5	30-170			
4-Chlorophenyl-phenyl ether	0.008	0.001	mg/L	0.0100		81.7	30-170			
5-Nitro-o-toluidine	0.009	0.001	mg/L	0.0100		91.9	30-170			
4-Nitroaniline	0.010	0.005	mg/L	0.0100		98.2	30-170			
4,6-Dinitro-2-methylphenol	0.008	0.001	mg/L	0.0100		81.2	30-170			
Diphenylamine	0.008	0.001	mg/L	0.0100		77.9	30-170			
Azobenzene	0.009	0.001	mg/L	0.0100		86.3	30-170			
1,3,5-Trinitrobenzene	0.008	0.001	mg/L	0.0100		81.5	30-170			
4-Bromophenyl-phenyl ether	0.008	0.005	mg/L	0.0100		81.2	30-170			
Phenacetin	0.009	0.001	mg/L	0.0100		91.2	30-170			
Diallylate	0.008	0.005	mg/L	0.0100		82.2	30-170			
Hexachlorobenzene	0.008	0.005	mg/L	0.0100		79.6	30-170			
4-Aminobiphenyl	0.006	0.001	mg/L	0.0100		62.1	30-170			
Pentachlorophenol	0.008	0.005	mg/L	0.0100		79.3	30-170			
Pentachloronitrobenzene	0.008	0.005	mg/L	0.0100		84.1	30-170			
Pronamide	0.009	0.001	mg/L	0.0100		94.7	30-170			
Phenanthrene	0.010	0.001	mg/L	0.0100		95.9	30-170			
Anthracene	0.008	0.001	mg/L	0.0100		84.0	30-170			
Dinoseb	0.008	0.005	mg/L	0.0100		77.3	30-170			
Carbazole	0.009	0.001	mg/L	0.0100		94.9	30-170			
Di-n-butylphthalate	0.013	0.001	mg/L	0.0100		134	30-170			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**LCS (4111308-BS1)**

Prepared &amp; Analyzed: 13-Nov-14

Isodrin	0.008	0.001	mg/L	0.0100		80.8	30-170			
Fluoranthene	0.010	0.001	mg/L	0.0100		98.9	30-170			
Benzidine	ND	0.010	mg/L	0.0100			30-170			BS2
Pyrene	0.009	0.001	mg/L	0.0100		85.9	30-170			
Dimethylaminoazobenzene	0.008	0.001	mg/L	0.0100		81.6	30-170			
Chlorobenzilate	0.009	0.001	mg/L	0.0100		91.1	30-170			
Butylbenzylphthalate	0.012	0.001	mg/L	0.0100		122	30-170			
Benzo[a]anthracene	0.009	0.001	mg/L	0.0100		87.1	30-170			
3,3'-Dichlorobenzidine	0.007	0.005	mg/L	0.0100		71.2	30-170			
Chrysene	0.009	0.001	mg/L	0.0100		88.0	30-170			
bis(2-Ethylhexyl)phthalate	0.014	0.001	mg/L	0.0100		145	30-170			
Di-n-octylphthalate	0.010	0.005	mg/L	0.0100		98.8	30-170			
Benzo[b]fluoranthene	0.008	0.001	mg/L	0.0100		82.8	30-170			
Benzo[k]fluoranthene	0.009	0.001	mg/L	0.0100		93.9	30-170			
Benzo[a]pyrene	0.009	0.0002	mg/L	0.0100		87.0	30-170			
3-Methylcholanthrene	0.008	0.001	mg/L	0.0100		81.1	30-170			
Indeno[1,2,3-cd]pyrene	0.008	0.001	mg/L	0.0100		77.0	30-170			
Dibenz[a,h]anthracene	0.008	0.001	mg/L	0.0100		82.9	30-170			
Benzo[g,h,i]perylene	0.008	0.001	mg/L	0.0100		77.0	30-170			
<i>Surrogate: 2-Fluorophenol</i>	<i>0.0272</i>		mg/L	<i>0.0500</i>		<i>54.3</i>	<i>21-100</i>			
<i>Surrogate: Phenol-d5</i>	<i>0.0154</i>		mg/L	<i>0.0500</i>		<i>30.8</i>	<i>10-94</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>0.0468</i>		mg/L	<i>0.0500</i>		<i>93.6</i>	<i>35-114</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>0.0383</i>		mg/L	<i>0.0500</i>		<i>76.6</i>	<i>43-116</i>			
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>0.0485</i>		mg/L	<i>0.0500</i>		<i>97.0</i>	<i>10-123</i>			
<i>Surrogate: Terphenyl-d14</i>	<i>0.0471</i>		mg/L	<i>0.0500</i>		<i>94.2</i>	<i>33-141</i>			

**LCS Dup (4111308-BSD1)**

Prepared &amp; Analyzed: 13-Nov-14

Pyridine	0.005	0.005	mg/L	0.0100		46.1	30-170	1.31	20	
N-Nitrosodimethylamine	0.005	0.005	mg/L	0.0100		53.4	30-170	0.187	20	
2-Picoline	0.005	0.005	mg/L	0.0100		48.8	30-170	1.42	20	
Methyl methanesulfonate	0.006	0.005	mg/L	0.0100		64.6	30-170	0.933	20	
Ethyl methanesulfonate	0.008	0.005	mg/L	0.0100		75.5	30-170	0.792	20	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**LCS Dup (4111308-BSD1)**

Prepared &amp; Analyzed: 13-Nov-14

Pentachloroethane	0.005	0.005	mg/L	0.0100		54.6	30-170	0.730	20	
Aniline	0.008	0.005	mg/L	0.0100		76.3	30-170	1.30	20	
Phenol	0.004	0.005	mg/L	0.0100		35.9	30-170	1.38	20	
2-Chlorophenol	0.008	0.005	mg/L	0.0100		77.2	30-170	0.130	20	
bis(2-Chloroethyl)ether	0.006	0.005	mg/L	0.0100		64.9	30-170	0.773	20	
1,4-Dichlorobenzene	0.041	0.005	mg/L	0.0100		411	30-170	1.33	20	BS1
1,3-Dichlorobenzene	0.005	0.001	mg/L	0.0100		52.1	30-170	0.385	20	
Benzyl alcohol	0.007	0.001	mg/L	0.0100		72.8	30-170	0.957	20	
1,2-Dichlorobenzene	0.006	0.001	mg/L	0.0100		57.7	30-170	0.173	20	
bis(2-Chloroisopropyl)ether	0.006	0.001	mg/L	0.0100		60.9	30-170	0.818	20	
Acetophenone	0.007	0.001	mg/L	0.0100		71.7	30-170	2.21	20	
2-Methylphenol	0.007	0.001	mg/L	0.0100		69.9	30-170	1.56	20	
4-Methylphenol	0.012	0.001	mg/L	0.0200		58.6	30-170	1.77	20	
Hexachloroethane	0.003	0.001	mg/L	0.0100		32.5	30-170	2.73	20	
N-Nitrosodi-n-propylamine	0.007	0.001	mg/L	0.0100		66.3	30-170	3.12	20	
Nitrobenzene	0.007	0.001	mg/L	0.0100		74.7	30-170	3.81	20	
N-Nitrosopiperidine	0.007	0.001	mg/L	0.0100		70.4	30-170	0.567	20	
Isophorone	0.008	0.001	mg/L	0.0100		76.9	30-170	2.19	20	
2-Nitrophenol	0.008	0.001	mg/L	0.0100		75.8	30-170	2.35	20	
2,4-Dimethylphenol	0.008	0.005	mg/L	0.0100		75.5	30-170	3.51	20	
bis(2-Chloroethoxy)methane	0.008	0.001	mg/L	0.0100		78.8	30-170	1.89	20	
2,6-Dichlorophenol	0.008	0.001	mg/L	0.0100		79.1	30-170	1.88	20	
1,2,4-Trichlorobenzene	0.006	0.005	mg/L	0.0100		57.3	30-170	2.75	20	
Naphthalene	0.006	0.001	mg/L	0.0100		62.8	30-170	3.44	20	
2,4-Dichlorophenol	0.008	0.001	mg/L	0.0100		83.0	30-170	0.840	20	
4-Chloroaniline	0.009	0.001	mg/L	0.0100		85.3	30-170	2.55	20	
Hexachloropropene	0.004	0.001	mg/L	0.0100		39.3	30-170	5.45	20	
Hexachlorobutadiene	0.004	0.001	mg/L	0.0100		37.7	30-170	0.265	20	
N-Nitroso-di-n-butylamine	0.006	0.005	mg/L	0.0100		55.7	30-170	2.66	20	
4-Chloro-3-methylphenol	0.008	0.001	mg/L	0.0100		77.0	30-170	1.55	20	
Safrole	0.008	0.001	mg/L	0.0100		77.6	30-170	1.15	20	
2-Methylnaphthalene	0.008	0.001	mg/L	0.0100		78.9	30-170	2.01	20	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**LCS Dup (4111308-BSD1)**

Prepared &amp; Analyzed: 13-Nov-14

1,2,4,5-Tetrachlorobenzene	0.007	0.001	mg/L	0.0100		67.0	30-170	4.42	20	
Caprolactam	ND	0.005	mg/L				30-170		20	
Hexachlorocyclopentadiene	0.004	0.001	mg/L	0.0100		42.9	30-170	0.00	20	
2,4,6-Trichlorophenol	0.009	0.001	mg/L	0.0100		92.8	30-170	0.644	20	
2,4,5-Trichlorophenol	0.009	0.001	mg/L	0.0100		91.7	30-170	0.327	20	
Isosafrole	0.008	0.001	mg/L	0.0100		77.0	30-170	2.50	20	
2-Chloronaphthalene	0.007	0.001	mg/L	0.0100		73.2	30-170	1.38	20	
2-Nitroaniline	0.008	0.001	mg/L	0.0100		83.5	30-170	0.240	20	
Dimethylphthalate	0.011	0.001	mg/L	0.0100		113	30-170	0.533	20	
Acenaphthylene	0.008	0.001	mg/L	0.0100		83.6	30-170	0.00	20	
2,6-Dinitrotoluene	0.008	0.001	mg/L	0.0100		84.9	30-170	1.52	20	
3-Nitroaniline	0.009	0.001	mg/L	0.0100		86.2	30-170	4.09	20	
Acenaphthene	0.008	0.001	mg/L	0.0100		78.8	30-170	0.764	20	
2,4-Dinitrophenol*	0.009	0.001	mg/L	0.0100		88.4	30-170	8.14	20	
Dibenzofuran	0.008	0.001	mg/L	0.0100		84.9	30-170	1.75	20	
4-Nitrophenol	0.005	0.001	mg/L	0.0100		45.3	30-170	4.74	20	
Pentachlorobenzene	0.007	0.001	mg/L	0.0100		72.6	30-170	0.549	20	
2,4-Dinitrotoluene	0.009	0.001	mg/L	0.0100		86.0	30-170	1.96	20	
2-Naphthylamine	0.006	0.001	mg/L	0.0100		62.0	30-170	0.483	20	
1-Naphthylamine	0.007	0.001	mg/L	0.0100		65.2	30-170	3.75	20	
2,3,4,6-Tetrachlorophenol	0.008	0.001	mg/L	0.0100		80.6	30-170	4.37	20	
Fluorene	0.009	0.001	mg/L	0.0100		85.2	30-170	0.352	20	
Diethylphthalate	0.009	0.001	mg/L	0.0100		87.8	30-170	1.92	20	
4-Chlorophenyl-phenyl ether	0.008	0.001	mg/L	0.0100		79.2	30-170	3.11	20	
5-Nitro-o-toluidine	0.009	0.001	mg/L	0.0100		87.6	30-170	4.79	20	
4-Nitroaniline	0.009	0.005	mg/L	0.0100		90.1	30-170	8.60	20	
4,6-Dinitro-2-methylphenol	0.008	0.001	mg/L	0.0100		79.9	30-170	1.61	20	
Diphenylamine	0.008	0.001	mg/L	0.0100		79.1	30-170	1.53	20	
Azobenzene	0.009	0.001	mg/L	0.0100		88.2	30-170	2.18	20	
1,3,5-Trinitrobenzene	0.008	0.001	mg/L	0.0100		78.4	30-170	3.88	20	
4-Bromophenyl-phenyl ether	0.008	0.005	mg/L	0.0100		81.7	30-170	0.614	20	
Phenacetin	0.009	0.001	mg/L	0.0100		89.0	30-170	2.44	20	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**LCS Dup (4111308-BSD1)**

Prepared &amp; Analyzed: 13-Nov-14

Diallate	0.008	0.005	mg/L	0.0100		82.9	30-170	0.848	20	
Hexachlorobenzene	0.008	0.005	mg/L	0.0100		79.8	30-170	0.251	20	
4-Aminobiphenyl	0.006	0.001	mg/L	0.0100		62.3	30-170	0.322	20	
Pentachlorophenol	0.008	0.005	mg/L	0.0100		77.2	30-170	2.68	20	
Pentachloronitrobenzene	0.008	0.005	mg/L	0.0100		84.6	30-170	0.593	20	
Pronamide	0.009	0.001	mg/L	0.0100		94.6	30-170	0.106	20	
Phenanthrene	0.010	0.001	mg/L	0.0100		95.1	30-170	0.838	20	
Anthracene	0.008	0.001	mg/L	0.0100		83.0	30-170	1.20	20	
Dinoseb	0.007	0.005	mg/L	0.0100		73.0	30-170	5.72	20	
Carbazole	0.009	0.001	mg/L	0.0100		93.5	30-170	1.49	20	
Di-n-butylphthalate	0.013	0.001	mg/L	0.0100		131	30-170	2.12	20	
Isodrin	0.008	0.001	mg/L	0.0100		80.6	30-170	0.248	20	
Fluoranthene	0.010	0.001	mg/L	0.0100		98.8	30-170	0.101	20	
Benzidine	ND	0.010	mg/L	0.0100			30-170		20	BS2
Pyrene	0.009	0.001	mg/L	0.0100		85.7	30-170	0.233	20	
Dimethylaminoazobenzene	0.008	0.001	mg/L	0.0100		83.3	30-170	2.06	20	
Chlorobenzilate	0.009	0.001	mg/L	0.0100		92.7	30-170	1.74	20	
Butylbenzylphthalate	0.012	0.001	mg/L	0.0100		122	30-170	0.0819	20	
Benzo[a]anthracene	0.009	0.001	mg/L	0.0100		86.4	30-170	0.807	20	
3,3'-Dichlorobenzidine	0.007	0.005	mg/L	0.0100		69.8	30-170	1.99	20	
Chrysene	0.009	0.001	mg/L	0.0100		88.5	30-170	0.567	20	
bis(2-Ethylhexyl)phthalate	0.015	0.001	mg/L	0.0100		146	30-170	0.482	20	
Di-n-octylphthalate	0.010	0.005	mg/L	0.0100		101	30-170	2.50	20	
Benzo[b]fluoranthene	0.009	0.001	mg/L	0.0100		87.1	30-170	5.06	20	
Benzo[k]fluoranthene	0.009	0.001	mg/L	0.0100		90.9	30-170	3.25	20	
Benzo[a]pyrene	0.009	0.0002	mg/L	0.0100		87.3	30-170	0.344	20	
3-Methylcholanthrene	0.008	0.001	mg/L	0.0100		81.0	30-170	0.123	20	
Indeno[1,2,3-cd]pyrene	0.008	0.001	mg/L	0.0100		77.0	30-170	0.00	20	
Dibenz[a,h]anthracene	0.008	0.001	mg/L	0.0100		81.4	30-170	1.83	20	
Benzo[g,h,i]perylene	0.008	0.001	mg/L	0.0100		77.0	30-170	0.00	20	
Surrogate: 2-Fluorophenol	0.0270		mg/L	0.0500		54.0	21-100			
Surrogate: Phenol-d5	0.0154		mg/L	0.0500		30.9	10-94			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Semivolatile Organic Compounds by GCMS - Quality Control**
**Cardinal Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 4111308 - SW846-3510**
**LCS Dup (4111308-BSD1)**

Prepared &amp; Analyzed: 13-Nov-14

Surrogate: Nitrobenzene-d5	0.0460		mg/L	0.0500		92.0	35-114			
Surrogate: 2-Fluorobiphenyl	0.0391		mg/L	0.0500		78.2	43-116			
Surrogate: 2,4,6-Tribromophenol	0.0469		mg/L	0.0500		93.7	10-123			
Surrogate: Terphenyl-d14	0.0470		mg/L	0.0500		94.1	33-141			

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Celey D. Keene, Lab Director/Quality Manager

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 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**General Chemistry - Quality Control**  
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B412089 - General Prep - Wet Chem**
**Blank (B412089-BLK1)**

Prepared &amp; Analyzed: 10-Dec-14

Fluoride	ND	0.250	mg/L							
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**LCS (B412089-BS1)**

Prepared &amp; Analyzed: 10-Dec-14

Fluoride	0.944	0.250	mg/L	1.00		94.4	85-115			
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**LCS Dup (B412089-BSD1)**

Prepared &amp; Analyzed: 10-Dec-14

Fluoride	0.950	0.250	mg/L	1.00		95.0	85-115	0.634	20	
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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Total Recoverable Metals by ICP (E200.7) - Quality Control**
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B412024 - EPA 200.2**
**Blank (B412024-BLK1)**

Prepared: 04-Dec-14 Analyzed: 08-Dec-14

Lead	ND	0.100	mg/L							
Nickel	ND	0.050	mg/L							
Copper	ND	0.020	mg/L							
Manganese	ND	0.005	mg/L							
Barium	ND	0.010	mg/L							
Molybdenum	ND	0.050	mg/L							
Selenium	ND	0.200	mg/L							
Potassium	ND	1.00	mg/L							
Silver	ND	0.050	mg/L							
Arsenic	ND	0.100	mg/L							
Cobalt	ND	0.050	mg/L							
Chromium	ND	0.050	mg/L							
Cadmium	ND	0.050	mg/L							
Sodium	0.472	0.250	mg/L							B1
Zinc	0.160	0.050	mg/L							B3
Boron	ND	0.300	mg/L							
Aluminum	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Iron	0.057	0.050	mg/L							B3

**LCS (B412024-BS1)**

Prepared: 04-Dec-14 Analyzed: 08-Dec-14

Sodium	7.20	0.250	mg/L	6.48		111	85-115			
Zinc	2.14	0.050	mg/L	2.00		107	85-115			
Aluminum	4.37	0.050	mg/L	4.00		109	85-115			
Nickel	2.04	0.050	mg/L	2.00		102	85-115			
Selenium	8.60	0.200	mg/L	8.00		107	85-115			
Silver	0.100	0.050	mg/L	0.100		99.9	85-115			
Arsenic	4.28	0.100	mg/L	4.00		107	85-115			
Molybdenum	4.10	0.050	mg/L	4.00		102	85-115			
Potassium	8.53	1.00	mg/L	8.00		107	85-115			
Boron	4.30	0.300	mg/L	4.00		107	85-115			
Iron	4.44	0.050	mg/L	4.00		111	85-115			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Total Recoverable Metals by ICP (E200.7) - Quality Control**
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B412024 - EPA 200.2**
**LCS (B412024-BS1)**

Prepared: 04-Dec-14 Analyzed: 08-Dec-14

Copper	4.38	0.020	mg/L	4.00		110	85-115			
Lead	2.20	0.100	mg/L	2.00		110	85-115			
Barium	2.07	0.010	mg/L	2.00		103	85-115			
Cobalt	2.06	0.050	mg/L	2.00		103	85-115			
Chromium	2.16	0.050	mg/L	2.00		108	85-115			
Manganese	2.13	0.005	mg/L	2.00		107	85-115			
Magnesium	21.9	0.100	mg/L	20.0		110	85-115			
Cadmium	2.15	0.050	mg/L	2.00		108	85-115			

**LCS Dup (B412024-BSD1)**

Prepared: 04-Dec-14 Analyzed: 08-Dec-14

Magnesium	21.7	0.100	mg/L	20.0		108	85-115	1.13	20	
Lead	2.20	0.100	mg/L	2.00		110	85-115	0.0831	20	
Iron	4.34	0.050	mg/L	4.00		109	85-115	2.24	20	
Arsenic	4.26	0.100	mg/L	4.00		107	85-115	0.403	20	
Boron	4.27	0.300	mg/L	4.00		107	85-115	0.494	20	
Barium	2.06	0.010	mg/L	2.00		103	85-115	0.322	20	
Aluminum	4.32	0.050	mg/L	4.00		108	85-115	0.991	20	
Cadmium	2.14	0.050	mg/L	2.00		107	85-115	0.707	20	
Selenium	8.60	0.200	mg/L	8.00		107	85-115	0.0309	20	
Molybdenum	4.09	0.050	mg/L	4.00		102	85-115	0.201	20	
Potassium	8.57	1.00	mg/L	8.00		107	85-115	0.449	20	
Nickel	2.04	0.050	mg/L	2.00		102	85-115	0.194	20	
Chromium	2.16	0.050	mg/L	2.00		108	85-115	0.198	20	
Manganese	2.11	0.005	mg/L	2.00		106	85-115	0.966	20	
Cobalt	2.05	0.050	mg/L	2.00		103	85-115	0.271	20	
Zinc	2.04	0.050	mg/L	2.00		102	85-115	4.62	20	
Sodium	7.03	0.250	mg/L	6.48		108	85-115	2.45	20	
Silver	0.101	0.050	mg/L	0.100		101	85-115	0.888	20	
Copper	4.35	0.020	mg/L	4.00		109	85-115	0.759	20	

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Dissolved Metals by ICP - Quality Control**
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B412132 - Dissolved Metals, E200.7/E200.8**
**Blank (B412132-BLK1)**

Prepared: 16-Dec-14 Analyzed: 17-Dec-14

Calcium	ND	0.020	mg/L							
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**LCS (B412132-BS1)**

Prepared: 16-Dec-14 Analyzed: 17-Dec-14

Calcium	4.91	0.020	mg/L	5.00		98.1	85-115			
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**LCS Dup (B412132-BSD1)**

Prepared: 16-Dec-14 Analyzed: 17-Dec-14

Calcium	4.89	0.020	mg/L	5.00		97.8	85-115	0.294	20	
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\* = Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence or any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damage including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Basin Environmental Service  
 P.O. Box 301  
 Lovington NM, 88260

 Project: WLSU #11  
 Project Number: NONE GIVEN  
 Project Manager: JOEL LOWRY  
 Fax To: (575) 396-1429

 Reported:  
 22-Dec-14 09:57

**Total Mercury by CVAA - Quality Control**  
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B412077 - EPA 245.1/7470**
**Blank (B412077-BLK1)**

Prepared: 09-Dec-14 Analyzed: 10-Dec-14

Mercury ND 0.0002 mg/L

**LCS (B412077-BS1)**

Prepared: 09-Dec-14 Analyzed: 10-Dec-14

Mercury 0.0022 0.0002 mg/L 0.00200 108 85-115

**LCS Dup (B412077-BSD1)**

Prepared: 09-Dec-14 Analyzed: 10-Dec-14

Mercury 0.0022 0.0002 mg/L 0.00200 110 85-115 1.92 20

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
BS2	Blank spike recovery below laboratory acceptance criteria. Results for analyte potentially biased low.
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
B3	Target analyte detected in method blank or continuing calibration blank. Reporting limit elevated to account for blank result.
B1	Target analyte detected in method blank at or above method reporting limit. Sample concentration found to be 10 times above the concentration found in the method blank or less than the reporting limit.
B	Analyte is found in the associated blank as well as in the sample (CLP B-flag).
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager



**ARDINAL LABORATORIES**  
 101 East Marland, Hobbs, NM 88240  
 (575) 393-2326 FAX (575) 393-2476

**CHAIN-OF-CUSTODY AND ANALYSIS REQUEST**

Company Name: <b>Joel Lowry</b>		<b>BILL TO</b>		<b>P.O. #:</b>		<b>ANALYSIS REQUEST</b>	
Project Manager: <b>P.O. Box 301</b>		Company: <b>Emergen Resources</b>		<b>Attn:</b> <b>Andy Cobb</b>			
City: <b>Livingston</b>		State: <b>NM</b>		Zip: <b>88260</b>			
Phone #: <b>(575)396-2378</b>		Fax #: <b>(575)396-1429</b>		Address:			
Project #: <b>WLSU #11</b>		Project Owner:		City:			
Project Name: <b>Lea Co., NM</b>		State: <b>NM</b>		Zip:			
Project Location: <b>Lea Co., NM</b>		Phone #:		Fax #:			
Sampler Name: <b>Daley Saxon</b>		FOR LAB USE ONLY		MATRIX		PRESERV	
Lab I.D. <b>Sample I.D.</b>		G/RAB OR (C)OMP.		ACID/BASE:		DATE	
<b>H403403</b>		MMW-1		ICE / COOL		TIME	
		9		OTHER :		11/20/14	
		6		OTHER :		920	
		X		All Compound 8260		X	
				All Compounds 8270		X	
				General Chemistry, see attached		X	
				Metals, see attached		X	
				<b>NO<sub>3</sub>, F</b>		X	
				<b>Total RCRA 8 Metals</b>			
				<b>Cu, Fe, Mn, Zn, Al,</b>			
				<b>B, Co, Mo, Ni</b>			
				<b>200.7 / 200.2</b>			

FORM-006  
 Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

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